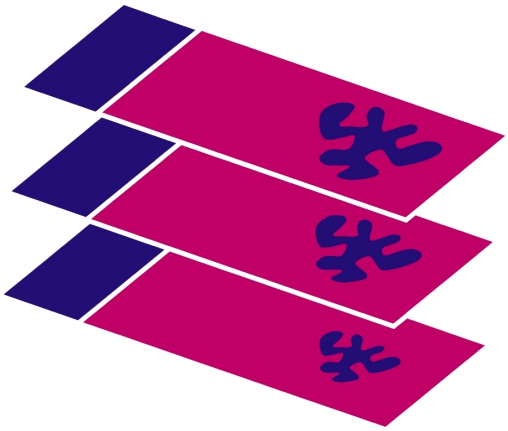

3DHISTECH

Pannoramic Viewer
1.15
User's Guide

June 7, 2011

PV1.15-UG-EN Rev1

Rev. 1

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Character Formats and Symbols

The following character formats and symbols are used in this User's Guide:

Example	Abbreviation or term that is explained in section Terms and abbreviations (page 7).
Example	Words or characters that appear on the screen. These include field names, screen and window titles, pushbuttons and menu names, paths or options. Keys on the keyboard. For example, function keys (such as **F11**) or the **Ctrl+M** key combination.
Example	Cross-references to other documents.
Warning!	Indicates that you need an additional module to use the feature or that there are prerequisites for the task.
Important!	Contains an important piece of information or a recommendation. The application will work if you choose not to follow the recommendation but its performance might be less than optimal.
Tip!	Contains a suggestion about using the application in some other way or to some interesting purpose.

Terms and abbreviations

Annotation	A particular detail of a digitized slide. Measurement visualization modules perform measurements on annotations.
CSV format	Comma Separated Value
Digital slide	Slide digitized with a scanner microscope, for example, Pannoramic Scanner. Consists of an MRXS file and a folder with the same name as the MRXS file.
Field	Annotation in an image analysis module.
Layer	A group of objects matching the same stain and size criteria.
MISP	A segmentation and measuring algorithm is stored in a MISP file.
MRXS	File extension of a digitized Pannoramic slide.
DPI	Dot Per Inch

Keyboard quick reference

Keyboard shortcut	Description
Up	Move slide upwards
Down	Move slide downwards
Left	Move slide left
Right	Move slide right
+	Increase magnification
-	Decrease magnification
ESC	Exit full screen mode
F1	Show help window
F2	Fit scanned area to window
F3	1x magnification
F4	2x magnification
F5	5x magnification
F6	10x magnification
F7	20x magnification
F8	40x magnification
F9	Display one pixel at the highest resolution of the image on one pixel of the monitor
F10	Menu
F11	Toggle full screen mode
F12	Switch to pan mode
Ctrl	During pressing, Pannoramic Viewer switches to pan mode
Ctrl+C	Change Slide tracking history color: (Red / Green / Blue)
Ctrl+F4	Close active slide window
Ctrl+M	Show / hide magnifier
Ctrl+O	Open slide or 3D project
Ctrl+P	Show / hide slide preview panel

Ctrl+S	Saves slide as a JPEG image file
Ctrl+T	Show / hide slide tree
Ctrl+V	Switches between the Fit and Full View modes in the upper preview window on the slide panel: • In Fit mode the preview window shows only the digitized specimen cut • In Full View mode the preview window shows the entire slide
Ctrl+Z	Change bottom preview mode: (Preview / Slide tracking history / Preview + Slide tracking history
Ctrl+Alt+V	Display the current version of the Pannoramic Viewer

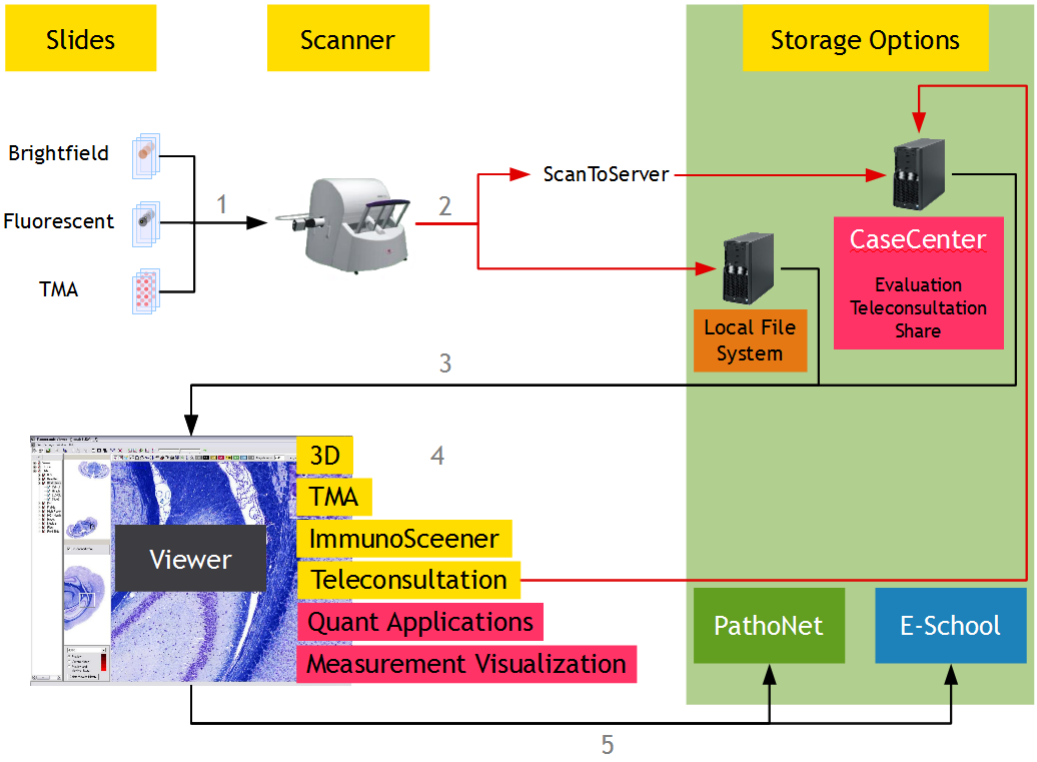
1 About Pannoramic Viewer

With Pannoramic Viewer, you can inspect, serialize, and annotate slides digitized with the Pannoramic microscope scanners.

1.1 3DHISTECH Product Family

Pannoramic Viewer is the core 3DHISTECH product. You can purchase additional modules for it to cover various virtual microscopy tasks.

The Pannoramic products support various tasks in the routine and research pathologist's workflow.



1. You digitize slides (which can also be tissue microarrays or slides stained with fluorescent probes) with a 3DHISTECH scanner microscope, for example, with Pannoramic SCAN 150. For information on the microscopes, see ***Pannoramic SCAN 150 1.15 User's Guide***.
2. The Pannoramic scanner microscope creates digitized slides that can be saved on a local computer connected to the scanner, or if the ScanToServer application is installed, the slides can be uploaded through the scanner software directly to the CaseCenter server where slides can be evaluated, shared, and you can also create Teleconsultation session to discuss specific cases with pathologists.

3. Slides can be opened from the local computer or the CaseCenter via Pannoramic Viewer, you can inspect the local slides and you can create *annotation*s on them to mark interesting areas.

   Pannoramic Viewer is a platform for the following applications, called modules:

4. With the **3D module**, you can reconstruct a specimen virtually from its cuts as a three-dimensional object. You can then view this object and recut it along other planes.

   With the **TMA module**, you can view and analyze slide sets in which each slide is a cut from a tissue microarray. Combined with the ImmunoScreener module, the TMA module provides you with a powerful tool to perform research-scale analyses on digital slides.

   With the **ImmunoScreener module**, you can perform an immunohistochemical analysis on a slide set. If you purchase the TMA module as well, you can run your ImmunoScreener analysis on a tissue microarray and score the TMA project in ImmunoScreener.

   With the **Teleconsultation module**, you can upload slides to a dedicated CaseCenter server and share them with other Pannoramic Viewer users to request their analysis. CaseCenter allows you to view remote slides (slides stored on a 3DHISTECH CaseCenter server). With this application, you can also host a *Teleconsultation* session or participate in a session initiated by another user.

   With the Quant applications such as **HistoQuant**, **MembraneQuant**, **NuclearQuant**, **FISHQuant**, and **DensitoQuant** modules, you can define algorithms to measure various parameters on a slide. Combined with ImmunoScreener, you can run the Quant algorithm on one slide or on a set of slides (grouped into an ImmunoScreener project).

5. You can upload slides to Pathonet or share slides for E-School. For more information on E-School, see ***E-School 1.11 – User's Guide***. One example of a server-based teleconsultation solution is www.pathonet.org.

1.2 Marker Counter

Pannoramic Viewer includes **Marker Counter as a licensed feature** to count cells and objects manually. You can define counter categories that Marker Counter uses, and you can move and reset Marker Counter on-screen.

After creating a Marker Counter annotation and placing markers within the region, the application automatically generates the values and shows them in a pop-up window. You can use this tool, for example, to keep track of the following data:

- number of marked objects or labeled areas
- percentage of positive cells or examined area
- average intensity of marked objects within their category

All measured parameters can be stored in the digital slide or can be exported to a database.

2 Installing Pannoramic Viewer 1.15

2.1 Requirements for Installing and Using Pannoramic Viewer

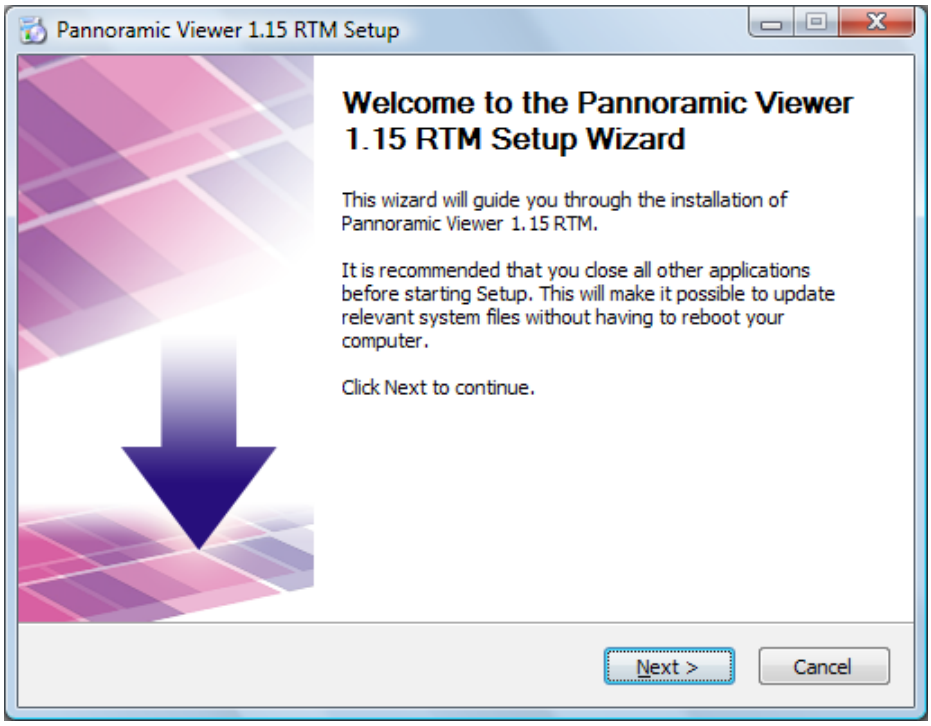
Operating system	Microsoft Windows XP SP3, Windows 7, 32/64 bit, EN/HU
Hardware	**Minimum**: Pentium P4 1.8 GHz, 1GB RAM **Recommended**: Pentium C2D (DualCore) 2.4 GHz, 2GB RAM
Monitor	**Recommended**: 96 DPI
Screen resolution	**Minimum**: CRT – 1280×960 TFT – 1280×1024 **Recommended**: CRT – 1600×1200 or better TFT – 1680×1050, 1920×1080 or better
LAN/WAN	**LAN**: 10 Mbit/s or better networking interface **Minimum bandwidth to remote servers**: 1,000 kbit/s (DSL)
Disk space	**Minimum:** 110 MB

2.2 Installation

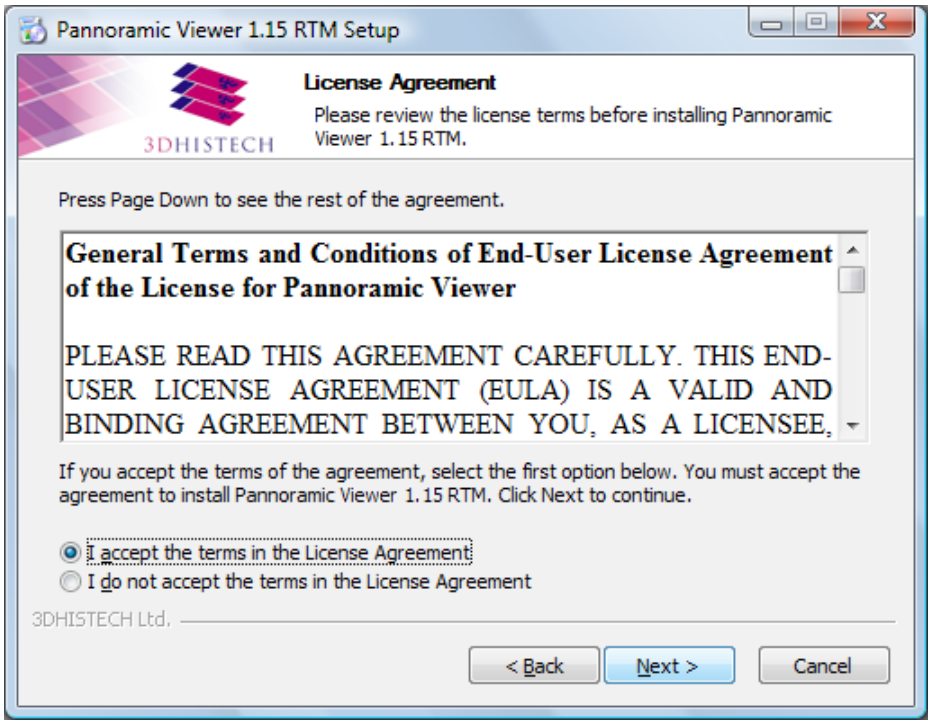
You receive the Pannoramic Viewer installation files on an installation disk, or downloaded in an executable file.

1. Start the installation:
   - From the CD/DVD-ROM:
     I. Insert the Pannoramic Viewer installation disk into the CD or DVD-ROM.
     II. If the start-up screen does not appear automatically, launch the **Pannoramic_Viewer_RTM_15_00_53.exe** file in the root directory of the disk.
   - From the compressed file, run the **Pannoramic_Viewer_RTM_15_00_53.exe** file**.**

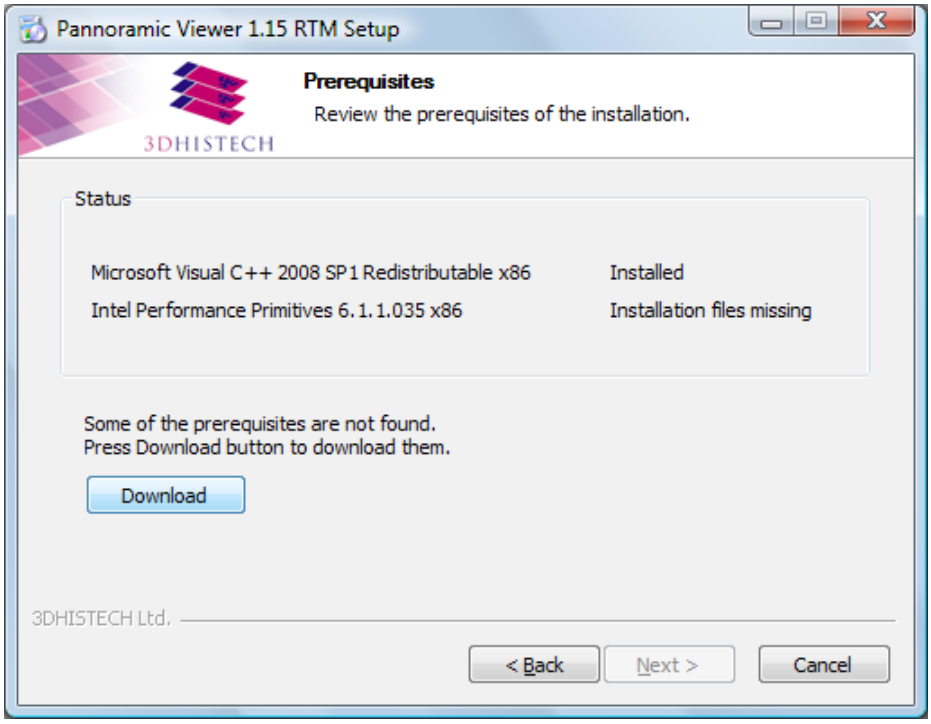
2. Follow the instructions in the installation wizard, and click **Next** to start installation.


Pannoramic Viewer 1.15 RTM Setup
Welcome to the Pannoramic Viewer 1.15 RTM Setup Wizard
This wizard will guide you through the installation of Pannoramic Viewer 1.15 RTM.
It is recommended that you close all other applications before starting Setup. This will make it possible to update relevant system files without having to reboot your computer.
Click Next to continue.
Next >
Cancel

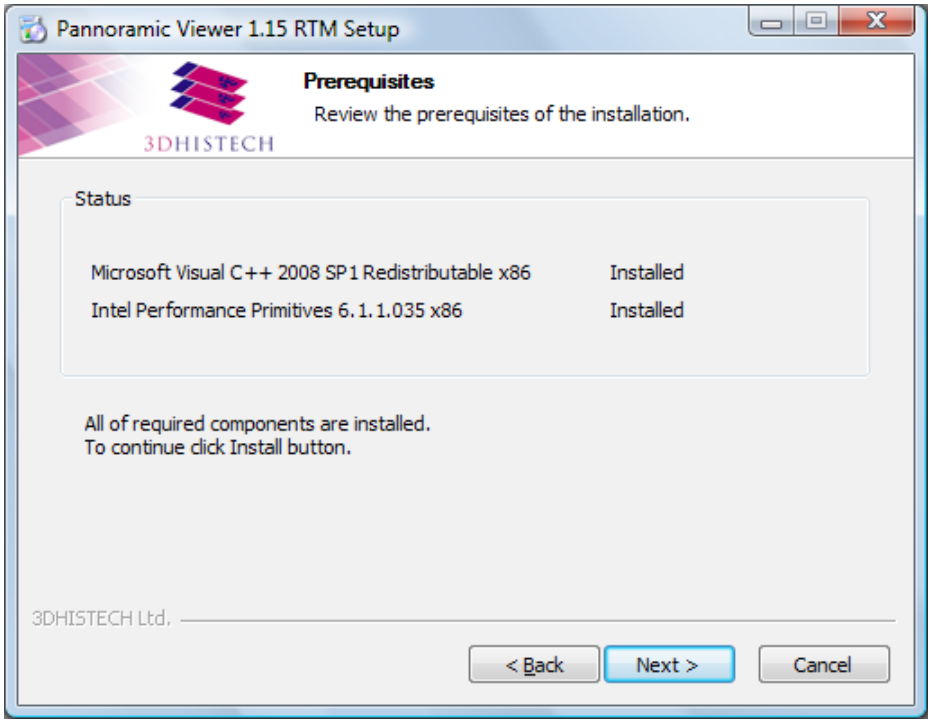
3. Accept the End-User License Agreement, and click **Next**.


Pannoramic Viewer 1.15 RTM Setup
3DHISTECH
License Agreement
Please review the license terms before installing Pannoramic Viewer 1.15 RTM.
Press Page Down to see the rest of the agreement.
General Terms and Conditions of End-User License Agreement of the License for Pannoramic Viewer
PLEASE READ THIS AGREEMENT CAREFULLY. THIS END-USER LICENSE AGREEMENT (EULA) IS A VALID AND BINDING AGREEMENT BETWEEN YOU, AS A LICENSEE,
If you accept the terms of the agreement, select the first option below. You must accept the agreement to install Pannoramic Viewer 1.15 RTM. Click Next to continue.
I accept the terms in the License Agreement
I do not accept the terms in the License Agreement
3DHISTECH Ltd.
< Back
Next >
Cancel

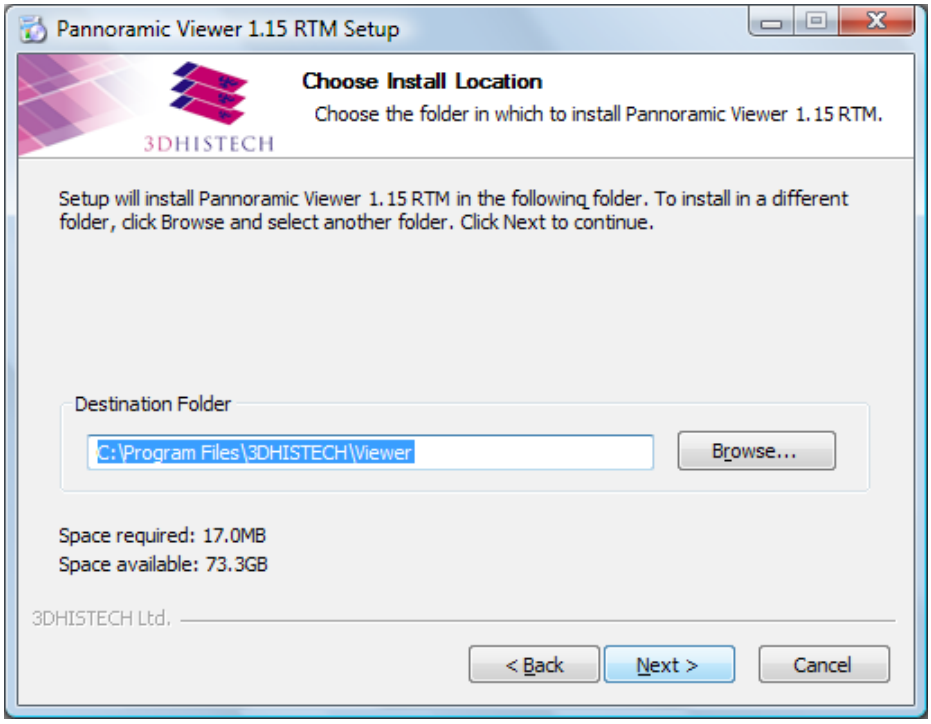
4. If some of the prerequisites is missing click the **Download** button.



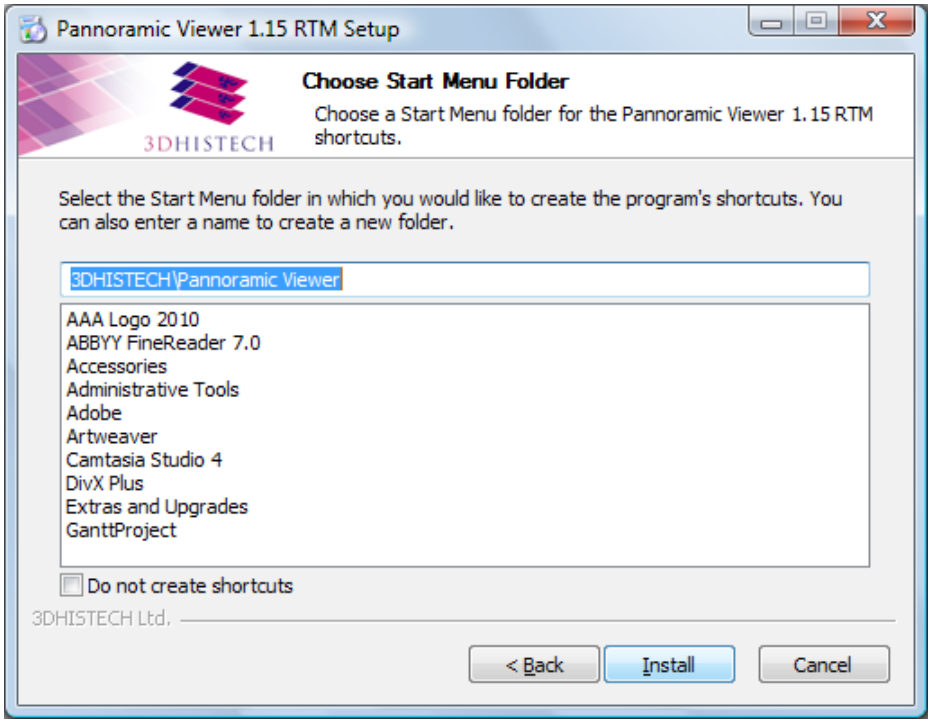
5. After the missing item has been installed, click **Next**.



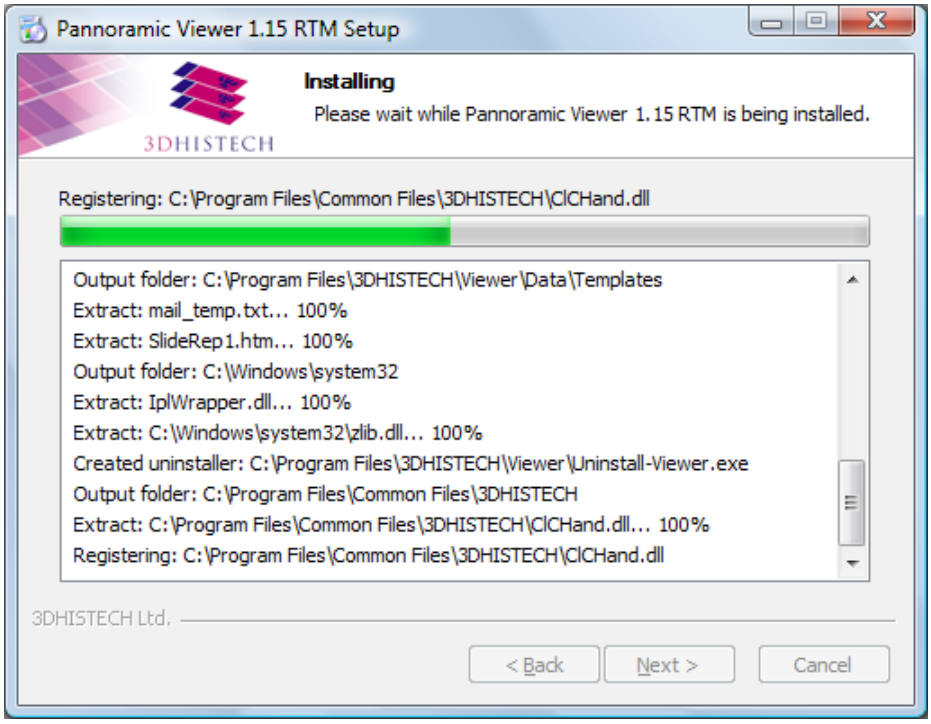
6. Choose the installation folder for Pannoramic Viewer. Click **Browse** for locating a different folder than the default one, then click **Next** to continue.


Pannoramic Viewer 1.15 RTM Setup
3DHISTECH
Choose Install Location
Choose the folder in which to install Pannoramic Viewer 1.15 RTM.
Setup will install Pannoramic Viewer 1.15 RTM in the following folder. To install in a different folder, click Browse and select another folder. Click Next to continue.
Destination Folder
C:\Program Files\3DHISTECH\Viewer
Browse...
Space required: 17.0MB
Space available: 73.3GB
3DHISTECH Ltd.
< Back
Next >
Cancel

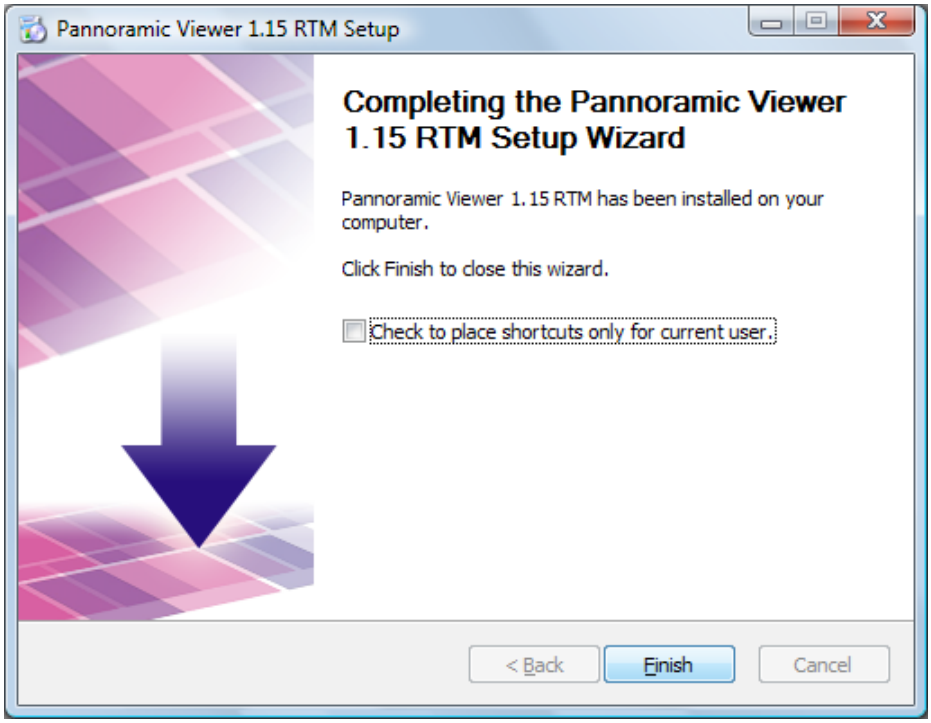
7. Choose the Start menu folder.



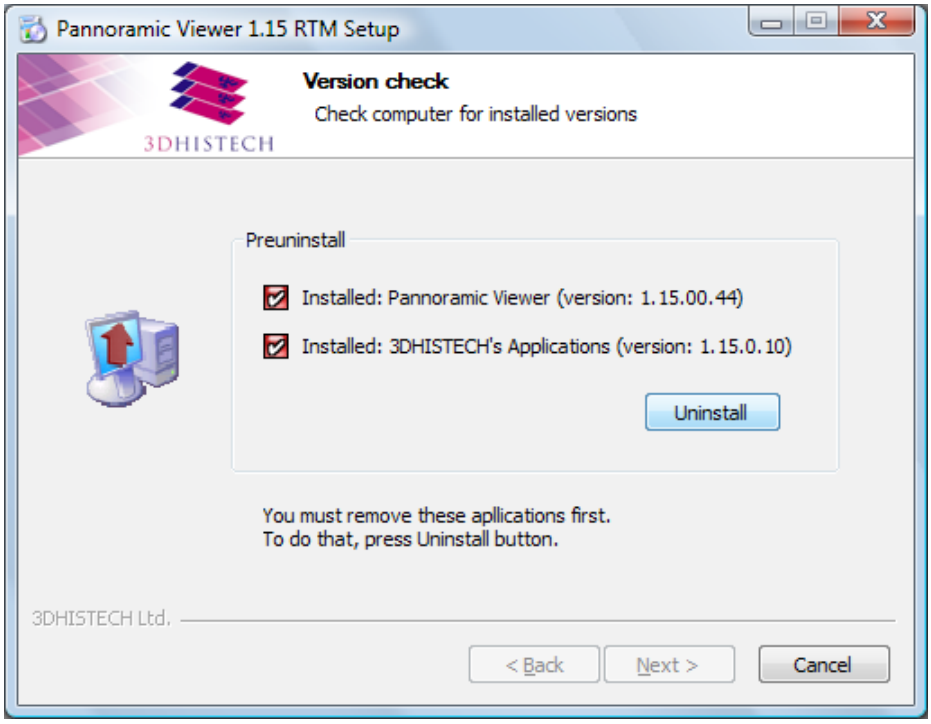
A progress bar and an information box is displayed, showing the status of the installation process.



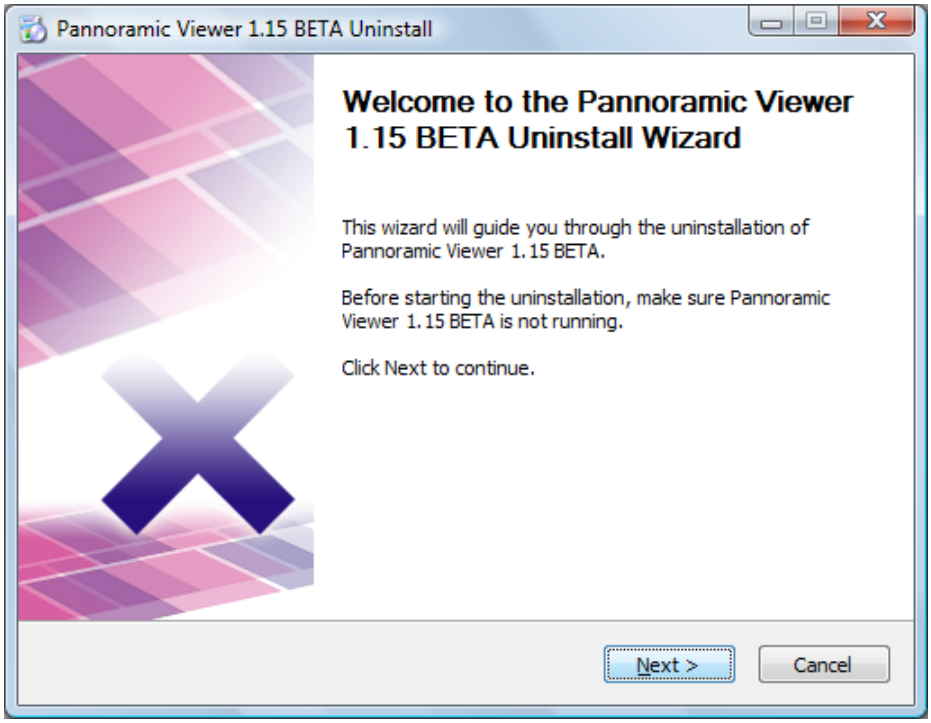
8. Click **Finish** when the installation is complete.


Pannoramic Viewer 1.15 RTM Setup
Completing the Pannoramic Viewer 1.15 RTM Setup Wizard
Pannoramic Viewer 1.15 RTM has been installed on your computer.
Click Finish to close this wizard.
Check to place shortcuts only for current user.
< Back
Finish
Cancel

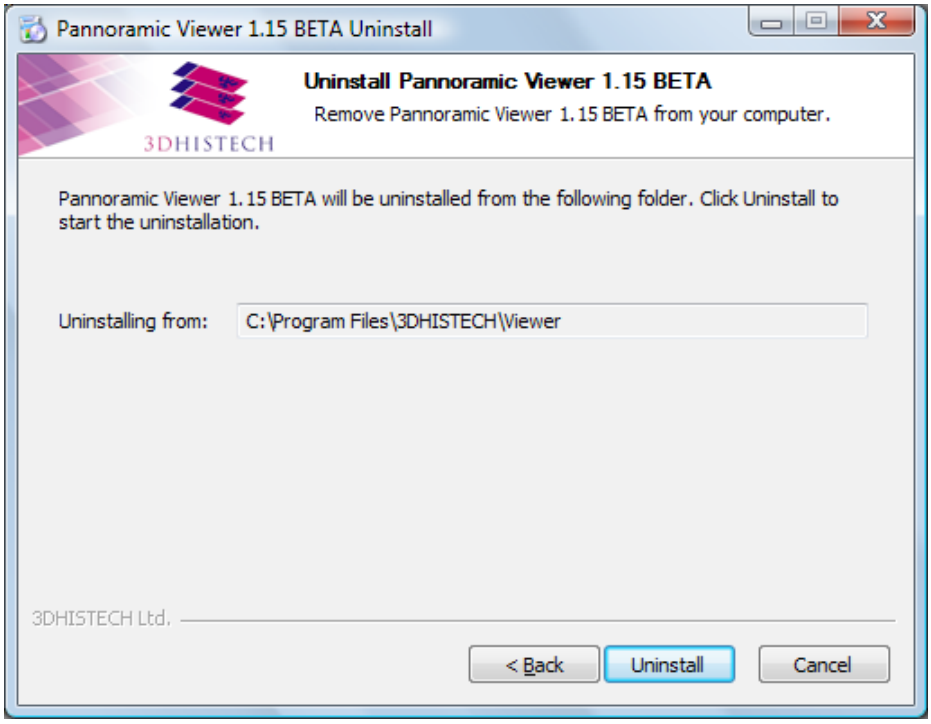
9. If you have a different version of the application, it must be uninstalled first.



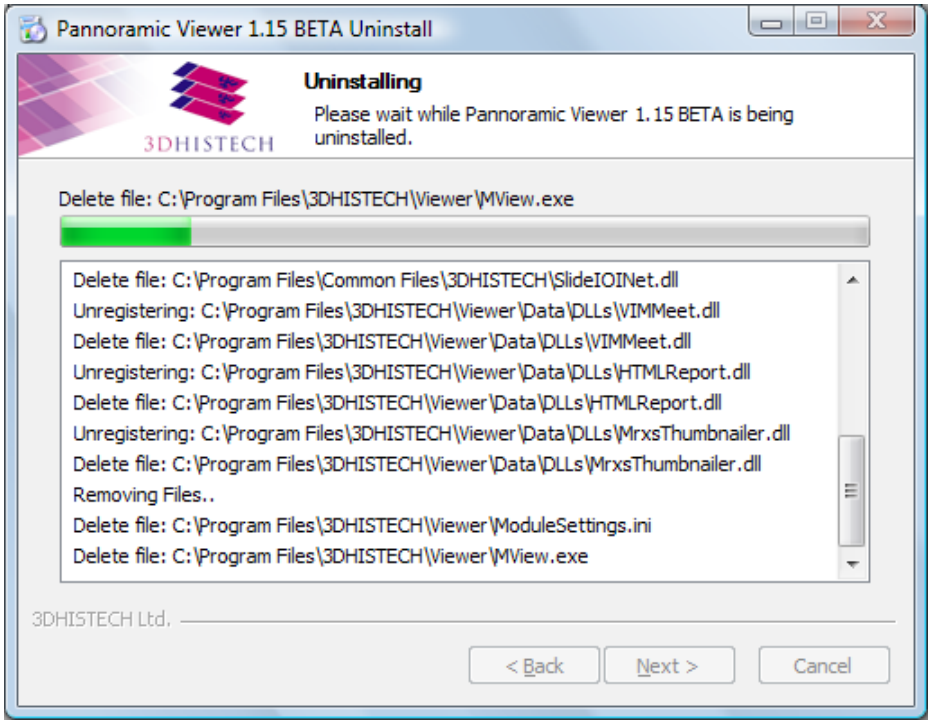
10. If the uninstall wizard window opens, click **Next**.


Pannoramic Viewer 1.15 BETA Uninstall
Welcome to the Pannoramic Viewer 1.15 BETA Uninstall Wizard
This wizard will guide you through the uninstallation of Pannoramic Viewer 1.15 BETA.
Before starting the uninstallation, make sure Pannoramic Viewer 1.15 BETA is not running.
Click Next to continue.
Next >
Cancel

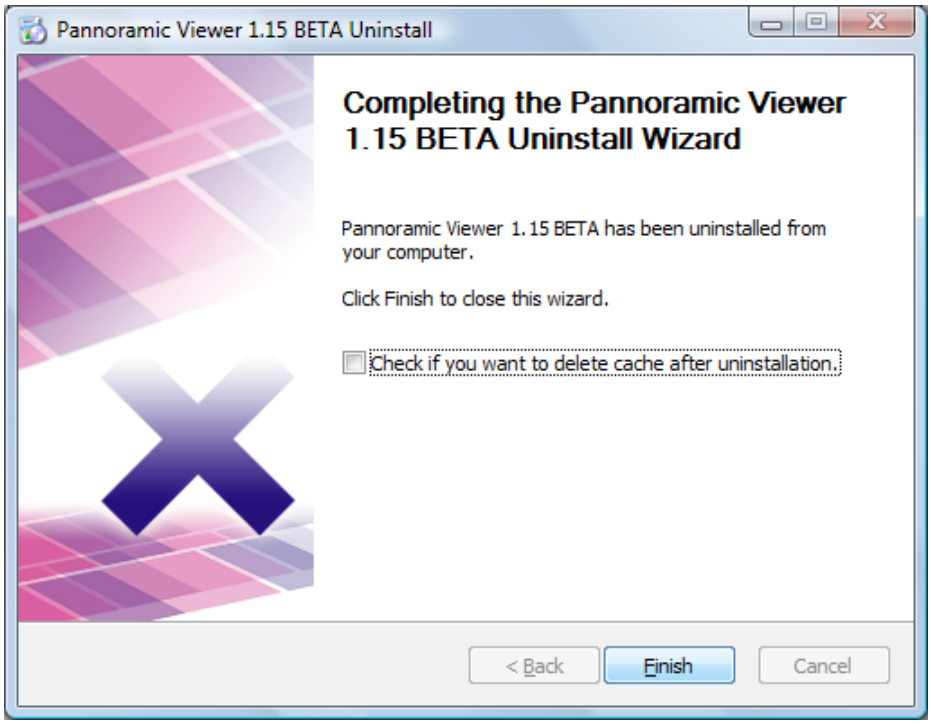
11. The wizard automatically detects the folder of the previously installed application. Click **Uninstall** to proceed.


Pannoramic Viewer 1.15 BETA Uninstall
Uninstall Pannoramic Viewer 1.15 BETA
Remove Pannoramic Viewer 1.15 BETA from your computer.
3DHISTECH
Pannoramic Viewer 1.15 BETA will be uninstalled from the following folder. Click Uninstall to start the uninstallation.
Uninstalling from:
C:\Program Files\3DHISTECH\Viewer
3DHISTECH Ltd.
< Back
Uninstall
Cancel

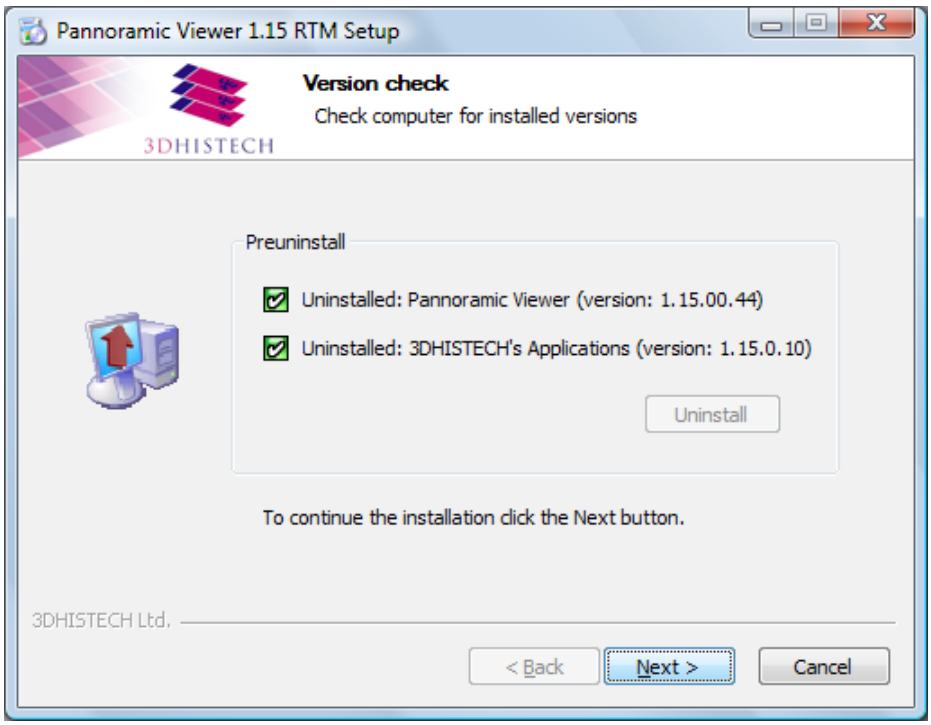
A progress bar and an information box is displayed, showing the status of the uninstallation process. When the uninstallation is completed successfully, click **Next**.



12. Click **Finish** to close the wizard.


Pannoramic Viewer 1.15 BETA Uninstall
Completing the Pannoramic Viewer 1.15 BETA Uninstall Wizard
Pannoramic Viewer 1.15 BETA has been uninstalled from your computer.
Click Finish to close this wizard.
Check if you want to delete cache after uninstallation.
< Back
Finish
Cancel

13. After the previously installed applications are removed, click **Next** to launch the installation wizard, then follow steps 2-8.



Important!

Keep the installation DVD, or back up the compressed installation file – it is needed for removing the application and also for upgrading the product.

2.3 Uninstalling Pannoramic Viewer

Important!

The digital slides that you open in Pannoramic Viewer, or the files created by the application are not removed when you uninstall Pannoramic Viewer. You can remove them manually if you do not need them any more.

1. Start the removal process:
    a. From the DVD-ROM:
        I. Insert the DVD into the DVD-ROM.
        II. If the start-up screen does not appear automatically, double-click the **Pannoramic_Viewer_RTM_15_00_53.exe** file in the root directory of the installation disk.
    b. From the Programs folder under the Windows Start menu:
        I. Press the **Start** menu button in Windows.
        II. Open **Program Files/3DHISTECH/Viewer** folder.
2. Select **Next / Uninstall**.

2.4 Starting Pannoramic Viewer for the First Time

1. Start the application:
    - From the shortcut on the Desktop
    - From the Windows menu: **Start/Programs/3DHISTECH/Viewer**

- From an annotation link
- By opening a slide (.mrxs file)

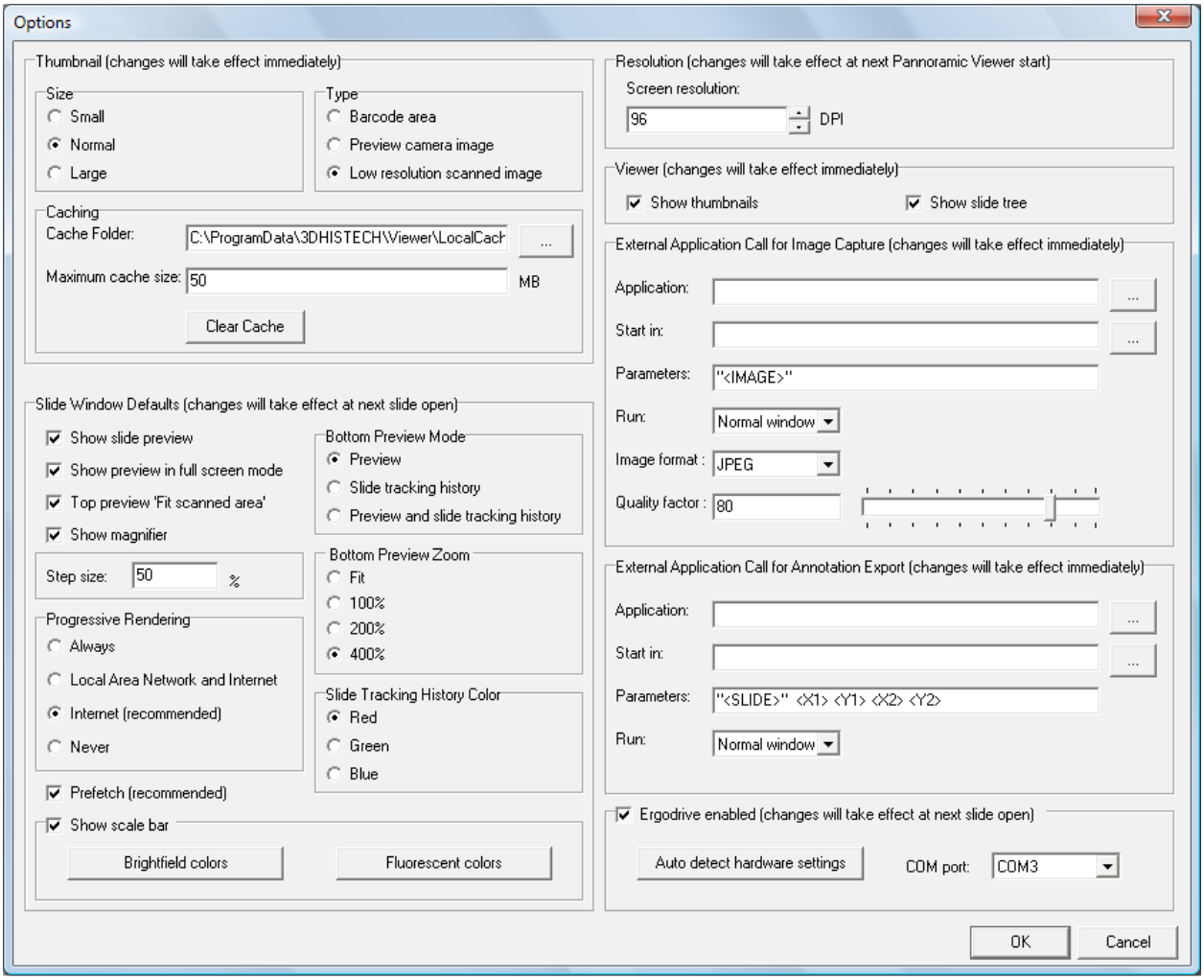
2. Select the start-up options of Pannoramic Viewer in **Settings / Options**.

3. Calibrate the slide display scale-bar (refer to section 2.5.7).

2.5 Pannoramic Viewer Start-up Options

Various parameters are available for a desired user-defined graphical appearance of the Pannoramic Viewer, once the program has started.

These properties can be modified by selecting **Options** in the **Settings** menu**.** An **Options** window for Pannoramic Viewer opens.



2.5.1 Thumbnail

- **Size**

  This option allows you to determine the size of the various preview images (**Small, Normal** or **Large**) displayed when the preview function is on. The larger the thumbnail images are, the more space is available for the name of the digital slide.

- **Type**

  This option defines the representation mode in the thumbnail view.

  - **Barcode area** – Displays only the barcode area as a thumbnail image in the gallery if the barcode area was recorded as an image by the digitizer. Otherwise, only the digital slide's thumbnail view is displayed.
  - **Preview camera image** – Displays the barcode area and the digital slide as a thumbnail image in the gallery (as taken by the preview camera) if the barcode area was recorded by the digitizer. Otherwise, only the digital slide's thumbnail view is displayed.
  - **Low resolution scanned image –** Displays the digital slide as a thumbnail image (taken by the scan camera) in the gallery.

- **Caching**

  You can locate a caching folder, and determine the disk cache size.

2.5.2 Slide window defaults

- **Show slide preview panel**

  This option displays the preview panel in the window of the digital slide if active. Preview panel can be turned off again with the **Ctrl+P** hotkey.

- **Show preview panel in full screen mode**

  When selecting full screen mode, the slide preview panel is displayed.

- **Top preview 'Fit scanned area'**

  If this option is active, the preview image shows only that slide area which is actually covered by a specimen for display.

- **Show magnifier**

  Allows a magnifier to be superimposed in the top right corner of a digital slide's window. The magnifier can always be switched on and off with the **Ctrl+M** hotkey.

- **Step size**

  Set how much the keyboard arrows shift the image. For example, if you set the step value to 50%, Pannoramic Viewer moves the focus area with half of the image.

- **Progressive Rendering**

  This option defines the mode of how the screen is built up and updated. With Progressive Rendering the digital slide is first loaded with a low resolution and afterwards updated with a higher resolution. If Progressive Rendering is disabled, the complete viewing area of the digital slide is shown with the selected resolution, without any intermediate views:

  - **Always** – Progressive Rendering is always carried out.
  - **Local Area Network and Internet** – Progressive Rendering is carried out only if the digital slide is displayed via LAN or the Internet.
  - **Internet** – Progressive Rendering is carried out only if the digital slide is displayed via the Internet (recommended setting).
  - **Never** – Progressive Rendering is never carried out.

- **Prefetch (recommended)**

  If this option is active, neighboring areas outside the visible zone are loaded. This way, a faster view build-up process is reached.

- **Show Scale Bar**

  By enabling this option, a scale bar with a scale value appears in the slide's window. You can also set the colors of the scale bar, the text, and their background both for brightfield and fluorescent slides.

- **Bottom Preview Mode**

  This is to define if the variable preview of a related specimen (Preview), the tracing mask (Slide tracking history) or both features (Preview and Slide tracking history) are displayed by default when a new digital slide is opened. Toggle between these modes with the **Ctrl+Z** hotkey.

- **Bottom Preview Zoom**

  Allows you to define a default zoom value for displaying the variable preview image. This value, however, can be specifically matched to each digital slide later on.

- **Slide Tracking History Color**

  This property defines the color of the tracing mask (Slide tracking history). Change color with the **Ctrl+C** hotkey.

2.5.3 Resolution

Screen resolution is for setting the currently connected monitor's display screen resolution in units of DPI (refer to section 2.1).

2.5.4 Viewer

- **Show thumbnails**

  This option defines if the thumbnail view screen of digital slides is to be in 'ON' or 'OFF' state when a Pannoramic Viewer session starts. If the preview image takes much time to build up (for example, when accessing a remote server), this option can be turned off. It can be turned on again at any time during the program session.

- **Show slide tree**

  This option defines if the register card view (tree view of the digital slides) is to be displayed or not when starting the Pannoramic Viewer session.

2.5.5 External Application Call for Image Capture

The snapshot function allows you to export the displayed image to raster image viewers or editors (refer to section 3.9.1). The related settings can be made in this area are as follows:

- **Application**

  This option defines the program to which the image information is exported. Browse for the folder of the application, and select the executable file.

- **Start in**

  You can define the working path of the exporting process. It is recommended to define the path in which the program to be called is located.

- **Parameters**

  - "<IMAGE>": When the image data are exported, the file name of the digital slide can also be transferred.

- **Run**

  Select the size of the window in which the export procedure is presented:

  - **Normal window** – The program is launched in a normal window.
  - **Minimized –** The program is displayed in a minimized window.

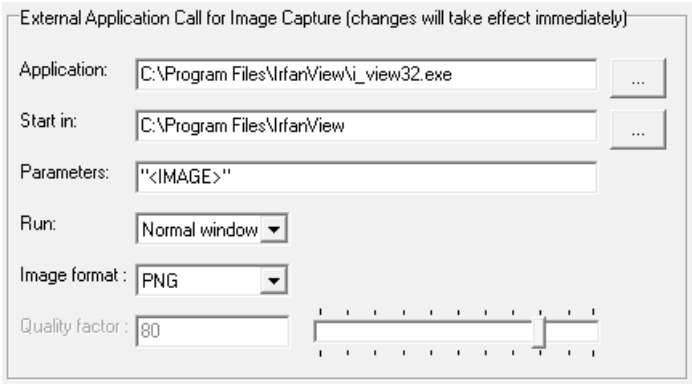
- **Maximized –** The program is displayed in a maximized window.

- **Image format**

  The image format to be exported is defined here. The following formats can be selected: JPEG, TIFF, BMP, and PNG.

- **Quality factor**

  Only if the JPEG image format is selected, you can set the quality factor (ranges from 1 to 100%). This setting is not possible for other image formats.



2.5.6 External Application Call for Annotation Export

When administering annotations, the currently displayed digital slide and a selected annotation can be opened in another program (refer to section 3.6.2). You can make the corresponding settings in this field.

- **Application**

  This option defines the program, to which the image information is exported. Browse for the folder of the application, and select the executable file.

- **Start in**

  You can define the working path of the exporting process. It is recommended to define the path in which the program to be called is located.

- **Parameters**

  When the image data are exported, other parameters can also be transferred:

  - **"<SLIDE>"** – The file name and the path of the digital slide currently displayed are transferred.

  - **<X1>** – The x value for the top left corner of the annotation is transferred.

- **<Y1>** – The y value for the top left corner of the annotation is transferred.
- **<X2>** – The x value for the bottom right corner of the annotation is transferred.
- **<Y2>** – The y value for the bottom right corner of the annotation is transferred.

▪ **Run**

Select the size of the window in which the export procedure is presented:

- **Normal window –** The program is launched in a normal window.
- **Minimized –** The program is displayed in a minimized window.
- **Maximized –** The program is displayed in a maximized window.

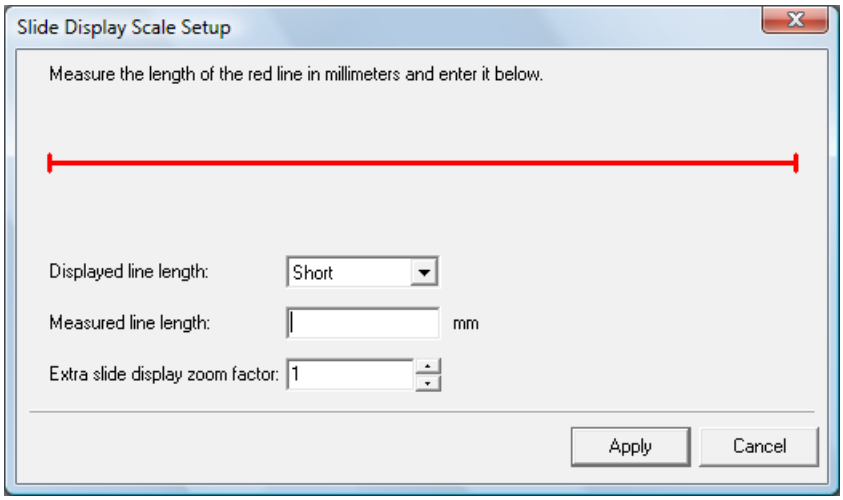
2.5.7 Enable the use of Ergodrive

After the Ergodrive has been connected to one of communication ports (COM port), activate the function in this window, then click the **Auto detect hardware settings** button. For further information on how to use the Ergodrive, see section ***6. Ergodrive***.

2.6 Configuring the on-screen scale

In Pannoramic Viewer a calibrated scale can be displayed on the digital slide window. Because the scale integrates the current values for display screen resolution and pixel geometry, the display screen must be properly calibrated before using the application. This input is required only once, unless your monitor is replaced with a new one or you change your monitor settings.

1. Open the **Slide Display Scale Setup** window by selecting **Settings/Options/Slide Display Scale Setup.**



2. Select the length of the bar, measure the displayed line with a ruler, then type in the value in millimeters.
3. Set the multiplication factor (enables extra zoom on slides).
4. To apply settings and close the window, click **Apply**. To exit the window without applying changes, click **Cancel**.

3 Working with the Pannoramic Viewer

> **Important!**
>
> Since user privileges or access rights depend on Microsoft Windows settings, some features of the Pannoramic Viewer may be not accessible for users with limited user permissions.

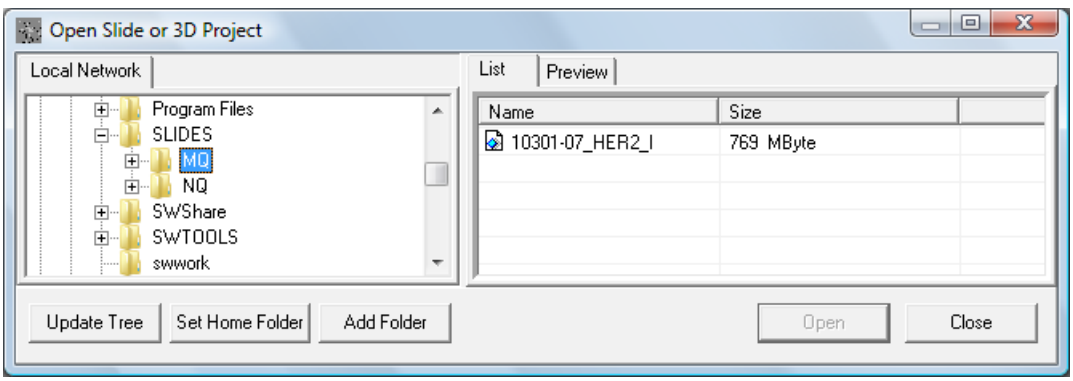
3.1 Managing Folders in the Navigation Tree

You can open slides one-by-one by browsing them from Pannoramic Viewer. You can open them faster, however, if you add their folders to the navigation tree in the application. You can add both local and remote folders to the navigation tree.

> **Important!**
>
> If a folder has been created under a different operation system language and its name contains a letter with double acute accent, it cannot be identified by Pannoramic Viewer, therefore slides in such folders cannot be opened.

Adding a folder to the navigation tree

1. If the navigation frame is not visible, click to display it.
2. Depending on the location of the folder, select the **Local** tab or the **Teleconsultation Server** tab.
3. In the toolbar, click .



4. Browse for the directory that you need and then click **Add Folder**.

5. If you want Pannoramic Viewer to start with this folder every time you open the application, click **Set Home Folder**.

Removing a folder from the navigation tree

Right-click the folder and then select **Remove Project from Tree** from the shortcut menu.

3.2 Opening Digital Slides

You can open digital slides from a local storage (disk drive or connected drive) or remotely from a CaseCenter. Pannoramic Viewer behaves differently with brightfield and with fluorescent slides.

3.2.1 Opening slides locally

To open a slide you can choose from the following options:

- Select **File / Open**.
- Press **Ctrl+O**.
- Click the button in the toolbar.
- In the navigation tree, select the **Local** tab, browse for the folder and then double-click the slide.
- If the slide is already displayed as a thumbnail in the preview frame, double-click the thumbnail.

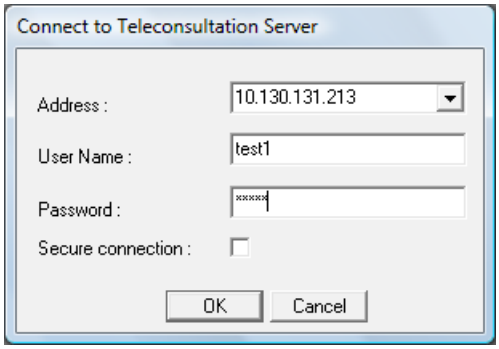
3.2.2 Opening slides from a 3DHISTECH CaseCenter server

CaseCenter servers are set up by default, so that only authorized users can access them. A server administrator must give you a user name and password before you can open slides from the server in Pannoramic Viewer.

Depending on the type and speed of the connection, some Pannoramic Viewer screens may take longer to load from the server than from a local drive.

1. Click the icon in the toolbar.

2. Enter the **URL** or the **IP address** of the CaseCenter and log in to the server with your username and password.



After you logged in to the server, you can see the remote folders and slides in the navigation tree on the **Teleconsultation Server** tab.

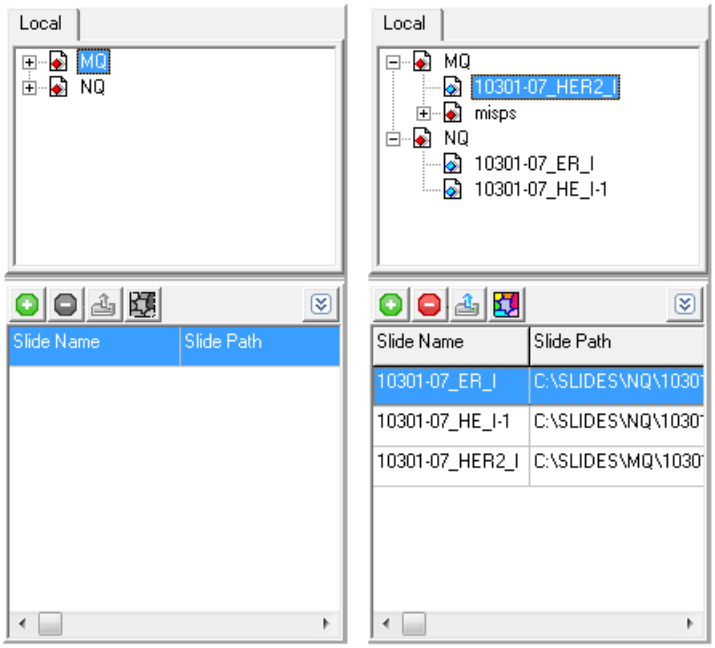
3.3 Upload Slides to CaseCenter

1. You can select any of the following options to upload slides to the server.

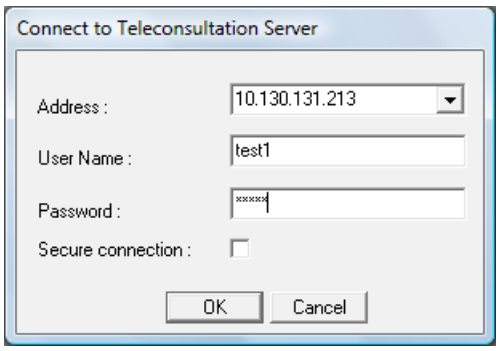
   - Select a slide or folder containing a set of slides from the tree in the Local tab. Right-click the slide or folder, then choose **Upload Slide(s) to Teleconsultation Server**.
   - Batch upload is available when creating a list of slides from various locations (folders or disk drives).

     After selecting a folder or slide in the Local tree, press the icon below the Navigation Tree panel. Press the icon to remove slide(s) from the list.

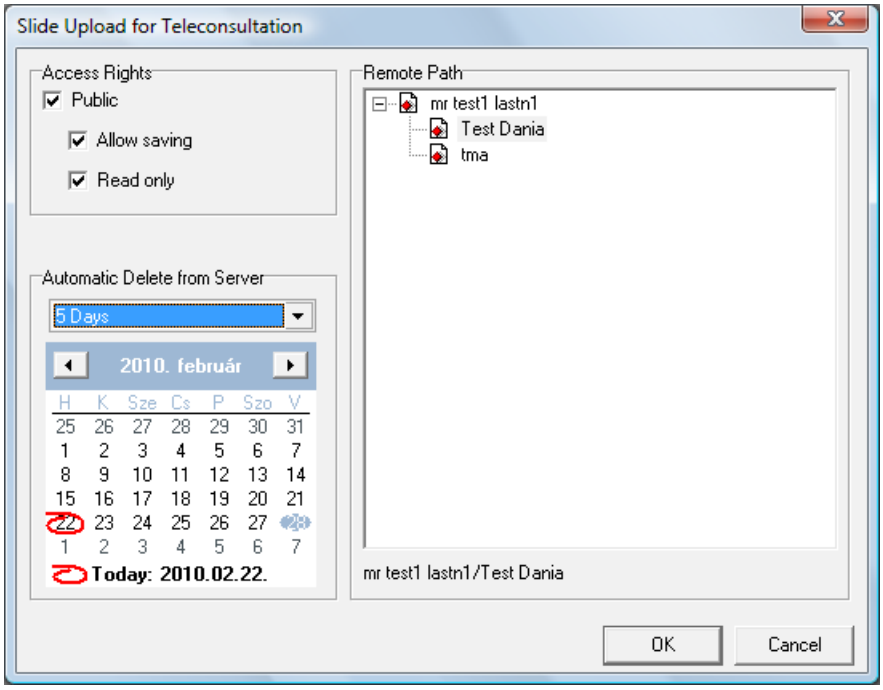
     The items added to the list can be uploaded to the server by clicking the icon.



2. Type in the **Address** of the server, the **User Name** and **Password** in the Connect to Teleconsultation Server window. Click **OK** to continue.

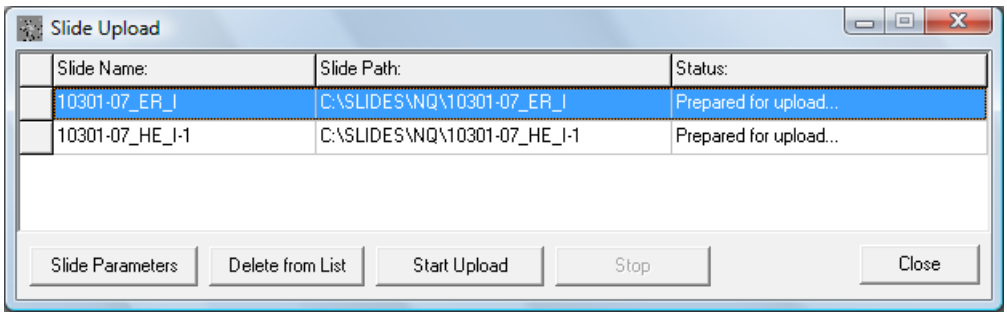


3. Set upload parameters, and click **OK**.



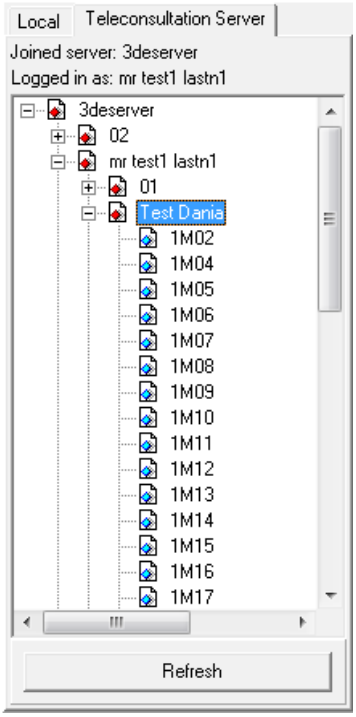
Access Rights	You can share the slide by selecting **Public**, make the slide **Read only** and/or downloadable by selecting **Allow saving**.
Automatic Delete from Server	Set the date of deletion from the drop-down list (1/2/3/5 Days, 1/2/3 Weeks, User Defined, or Never). The date can be selected in the calendar as well.
Remote Path	Select the location of the slide on the server.

4. You can add more slides to the list, change **Slide Parameters**, and remove slides by clicking the **Delete from List** button in the Slide Upload window.



When all the slides you want to upload to the CaseCenter server are listed in the window, press the **Start Upload** button.

5. To update the tree, click the **Refresh** button.



Important!

When refreshing the tree view of the server, the content of the selected folder will be updated only.

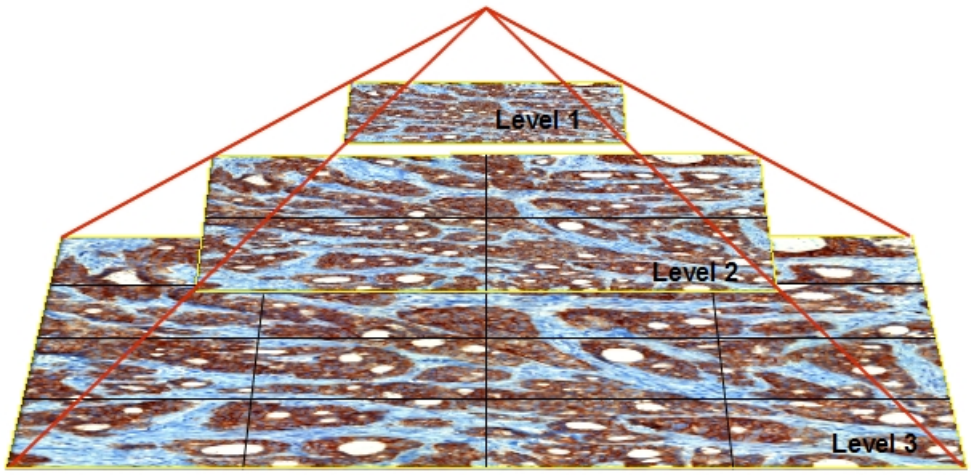
3.4 Viewing Slides

3.4.1 Image creation method

Slide images in Pannoramic Viewer are represented by a tiled image pyramid. The image pyramid is a hierarchical structure composed of *n* levels of the same image of different resolutions. This allows the rendering engine to grab only that bit of data that is necessary for a particular view of a digital slide image.

However, if the user is zoomed in to a specific area of a large image, then only those tiles needed to show the specific areas are downloaded. This can lead to very large bandwidth savings because often only some aspects of a large image are interesting to the user.

The illustration below shows what the image pyramid looks like conceptually. At each level of the pyramid, the image is scaled down by 4 (a factor of 2 in each dimension).



At the bottom of the pyramid is the given full size image. Each set of 2×2=4 neighboring pixels is replaced by their average as the pixel value of the image at the next level.

This process, which reduces the image size by half, is repeated n=log2N times until finally an image of only 1 pixel (average of entire image) is generated as the top of the pyramid.

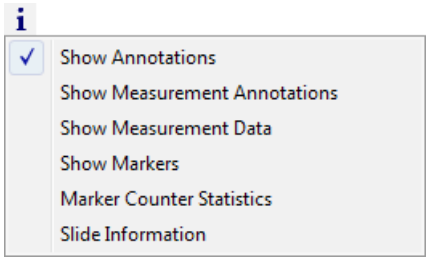
3.4.2 Displaying information on the slide

Each digital slide window displays the following two pieces of information:

- The size of the window currently on display in relation to the specimen and the selected magnification.

- The loading progress of a current view: with digital slides available on local sources, the loading process is very fast so the progress bar is of secondary signification in this case. However, where digital slides on remote servers are accessed, this bar shows the latest progress state of downloading.

When clicking the button in the digital slide window, a selection menu with information items relating to the digitized digital slide (Slide info) appears on the display.



Important!

Select **Show Measurement Data** from the Viewer's **INFO** menu to display detailed measurement information according to annotations only when the analysis process is finished, otherwise the slide must be reopened.

3.4.3 Using the full-screen mode

To switch to full-screen mode, click the button in the main toolbar or press **F11** on the keyboard.

To return from the full-screen mode, press **F11** on the keyboard.

3.4.4 Dragging and moving the slide up/down and left/right

Tip!

Use clicks in the preview window rather than holding down the mouse button when you move around on a slide: Pannoramic Viewer renders the image faster if you move the mouse in discrete steps rather than with a continuous movement. When using Ergodrive as the operating device for moving the image, press the button defined for X,Y resolution change to enable faster movement.

To enable moving and dragging, click the button in the slide toolbar. Then use any of the following two options:

a) **With the mouse:** Click an anchor point in the slide, hold the left mouse button and drag the slide to the desired direction.

b) **From the keyboard:** Click the area of the slide that you want to inspect, then use the arrow keys on the keyboard to move the image up/down or left/right.

c) **With the Ergodrive:** Turning the upper knob (Y) moves the slide horizontally, and turning the lower knob (X) moves the slide vertically.

3.4.5 Setting the magnification level

You can set the magnification level in the toolbar at the top of the slide window:

Use one of the preset magnification levels.

- **Fit** – the entire specimen is visible, fits into window
- **1:1** – one camera pixel corresponds to one pixel on the monitor

You can also enter the magnification level manually in the text field and then click the area that you want to inspect with that magnification. Note, that the highest magnification ratio that can be achieved on a slide is 2:1, meaning that one pixel of the digital slide is presented on two pixels in the slide window.

3.4.6 Previewing a smaller area with a higher magnification

1. To enable the magnifier (a small preview window in the top-right corner of the slide window), click the button on the slide toolbar, or use the **Ctrl+M** hotkey.
2. Move the mouse cursor to the area that you want to see in the magnifier.

3.4.7 Zooming

Zooming around a point

1. Click the button on the slide toolbar if not activated.
2. Select the point that you want to inspect then zoom with the mouse scroll wheel, with the Ergodrive, or with keyboard keys:
   - Use the mouse wheel. You can modify zoom level by rolling the mouse wheel back and front.
   - Roll the Z wheel of the Ergodrive to zoom in or out.
   - Use the plus (+) and minus (-) keys on the keyboard.

Zooming to an area

1. Click on the slide toolbar.
2. Select the area that you want to inspect with the left mouse button then release it.

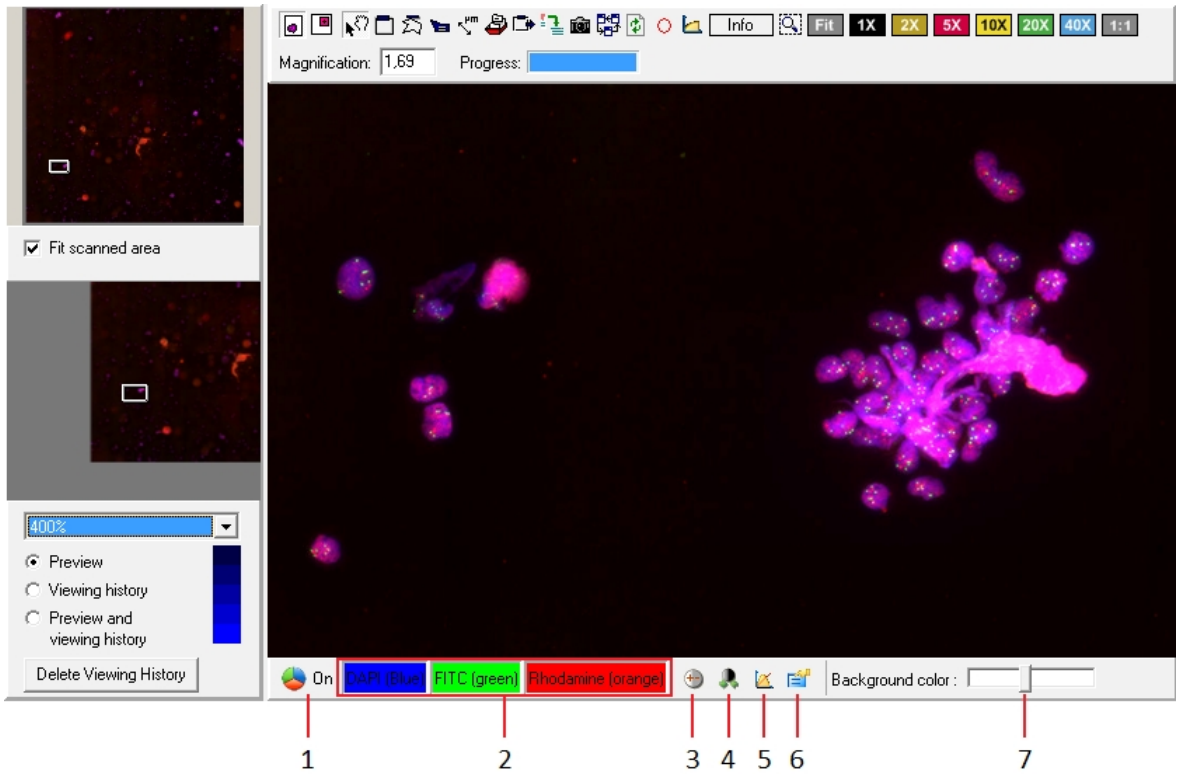
3.4.8 Rotating slides

With this feature you can rotate slides by degrees, and flip them vertically or horizontally. The feature-related buttons are displayed in the main toolbar of Pannoramic Viewer after opening a slide.

	Rotate slide 90° left
	Rotate slide 90° right
	Rotate slide 180°
	Flip slide horizontally
	Flip slide vertically
	Slider to rotate slide by from 0 to 360 degrees
	Reset rotation

3.5 Working with Fluorescent Slides

Pannoramic Scanner allows you to create slides with maximum ten channels in fluorescent mode. For more information, see ***Pannoramic SCAN 150 1.15 User's Guide***. When you open a fluorescent slide, Pannoramic Viewer offers you options that are available only for these kind of slides.



1. Turn on/off colors
2. Left click on a label: switch on/off current channel

   Right click on a label: change the color of the channel (pseudo-colorization)
3. Set optimal brightness value (depends on zoom factor, all channels)
4. Set optimal contrast value (depends on zoom factor, all channels)
5. Set optimal gamma value (depends on zoom factor, all channels)
6. Properties window: adjust brightness, contrast and gamma channel by channel
7. Change the background color of the slide in grayscale

3.6 Changing Image Properties

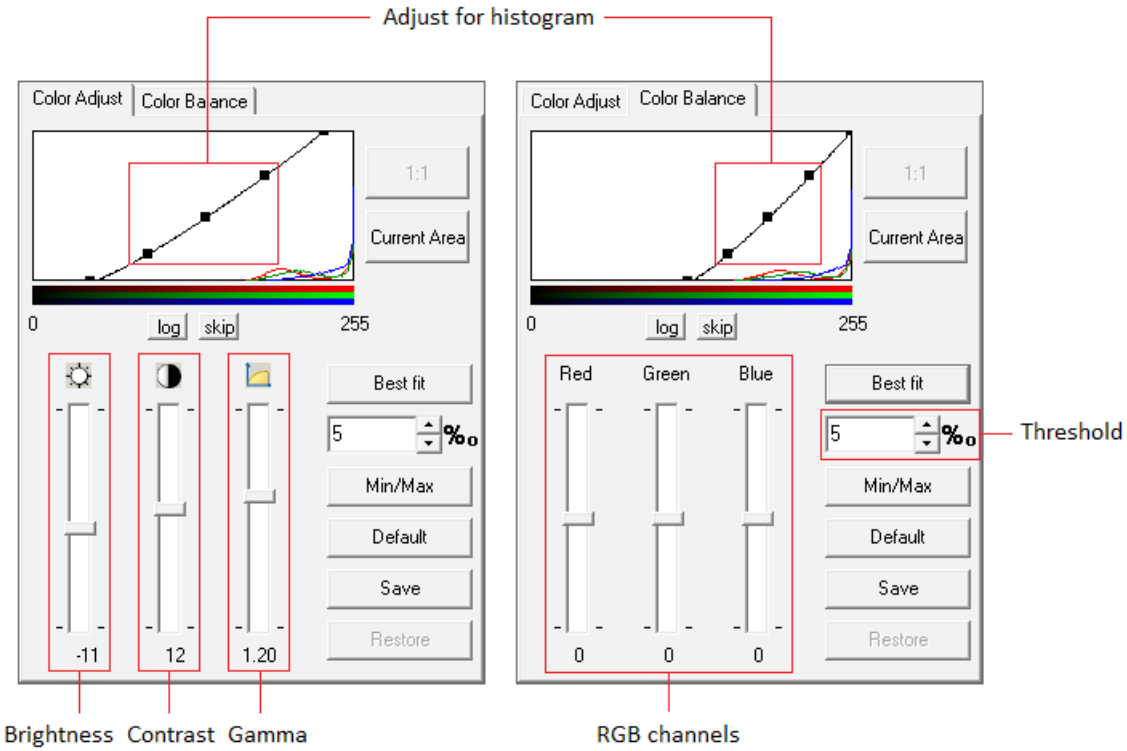
If the button is activated, the software displays a window where you can make modifications in property settings regarding brightness, contrast, gamma value, and color matching for each single digital slide.

> **Important!**
>
> If you use a high-quality screen, the default settings for color reproduction, gamma, brightness and contrast are adequate. These functions are mainly intended for highlighting specific image contents for training and documentation purposes or to match monitor screen features. User-modified settings are saved specifically for the active digital slide.

NOTE: The applied color settings of the slide is used when creating Gallery or Classification Gallery in the Measurement Visualization module.

3.6.1 Setting up colors on a slide

When a slide is open, click the button on the toolbar to open the **Properties** window.



- If the **Current Area** button is activated, the histogram of the currently displayed image segment is shown.

- If **1:1** is active, the histogram for the complete digital slide is shown. The option **1:1** is available only if the specimens were digitized by means of a Pannoramic Scanner control software version 1.14 or higher.

- In the upper part of the window there is a graphic image of the color values of the currently displayed digital slide or image segment. The black line with squares represents the characteristic curve, and it can be shifted to left/right or upward/downward by dragging the squares. If brightness, contrast, gamma, or RGB values are changed, the sliders below are set automatically to the corresponding positions.

  Representation between the grayscale value (ranges from 0 to 255) and the number of grayscale values is linear. For logarithmic representation the **log** button must be activated.

- Use **Best fit** button for optimal setting on the basis of the threshold value defined in per thousand. In brightfield mode, all three color channels (RGB) are optimized (Color Balance tab). For fluorescence, this function can be executed for each single channel.

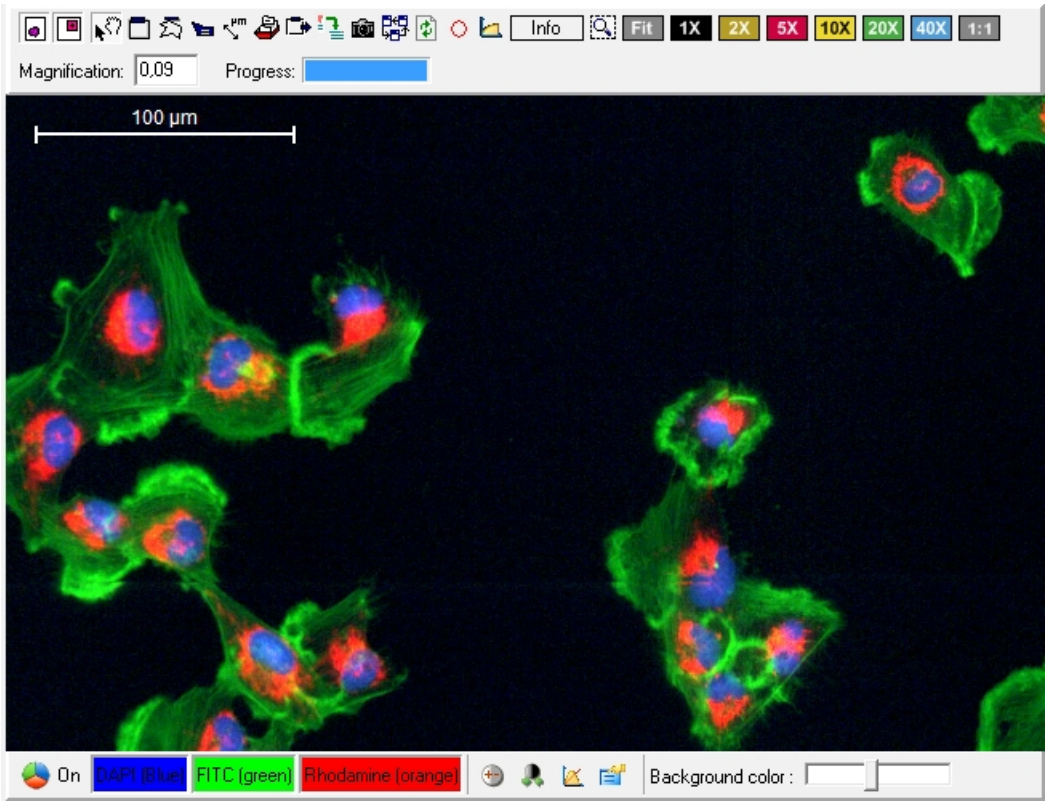
- The **Min/Max** button is used for optimal setting by extending the histogram between the minimum and maximum values. In brightfield mode, all three color channels (RGB) are optimized (Color Balance tab). For fluorescence, this function can be executed for each single channel.

- The three sliders have a direct influence on brightness, contrast and gamma value on the Color Adjust tab, and on RGB channels on the Color Balance tab. By clicking the **Default** button, the sliders for brightness and contrast are reset to the default value 0, the gamma value is set to 1.20 (brightfield) or 1.00 (fluorescence).

- Save settings by clicking the **Save** button. Restore is used to recall the settings again. This function refers only to the current digital slide. If another digital slide is called, the saved values will not be available.

3.6.2 Setting up colors on a fluorescent slide

If specimens were digitized in the fluorescence mode, all channels are displayed in the bottom part of the image. The software supports up to nine channels. In the example below, three channels were digitized (DAPI, Alexa 488 and Cy3).



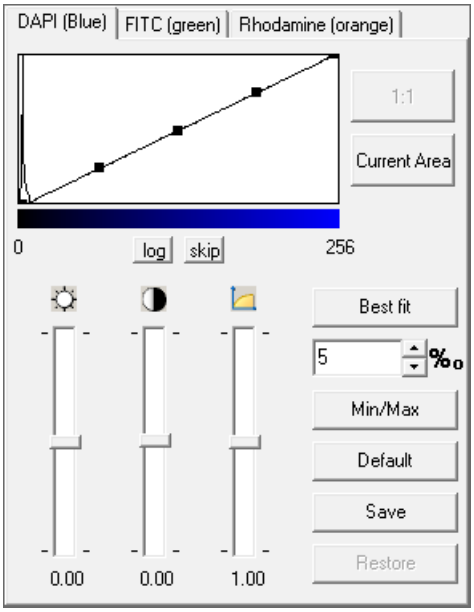
The pseudo-colors are taken over as specified in the Pannoramic Scanner control software before digitization, but can still be changed in Pannoramic Viewer.

There are various options for changing the representation of digital slides:

- Individual channels can be shown or hidden by clicking on the respective channel DAPI (Blue) FITC (green) Rhodamine (orange).
- By clicking with the right mouse key on the respective channel, another pseudo-color can be selected for this channel.
- The channels are displayed in their pseudo-colors when the button is on. To display the digital slide in gray levels, this button must be in 'OFF' position. For gray-level images, only one channel can be displayed.
- The button serves to optimize the digital slide for all channels through the **Best fit** function (for optimizing single channels, see section 3.5.1).

- The button is used to optimize the digital slide for all channels by extending the histogram (Min/Max) (for optimizing single channels, see section 3.5.1).
- By clicking the button, the default settings are restored.
- The non-digitized region of a digital slide is displayed with a grayscale value that has been defined by means of the slider **Background color**. A relatively dark background is recommended (slider shifted to the left).

The button opens a **Properties** window, which allows contrast, brightness, gamma and other values to be set for the individual channels. For details on the settings, see section 3.5.1.

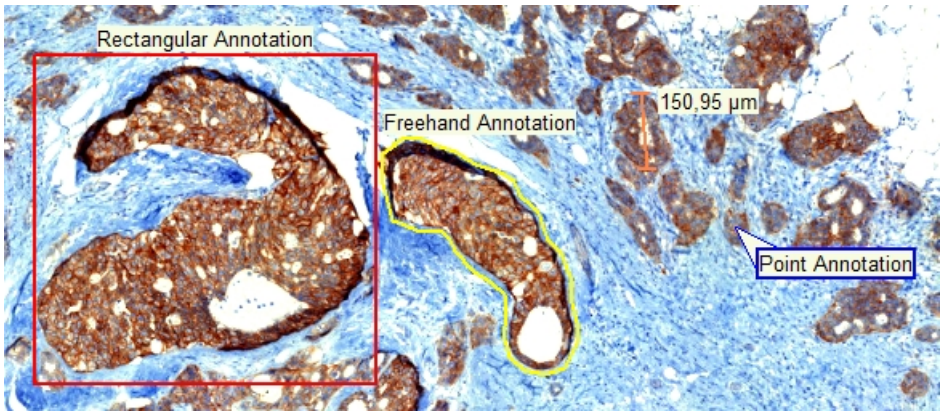


3.7 Working with Annotations

You can add layers (annotations) to digital slides to mark specific areas of the specimen. Annotations can be superimposed on a digital slide; to show previously created annotations on the slide, the **Display Annotations** feature must be activated after clicking the button.

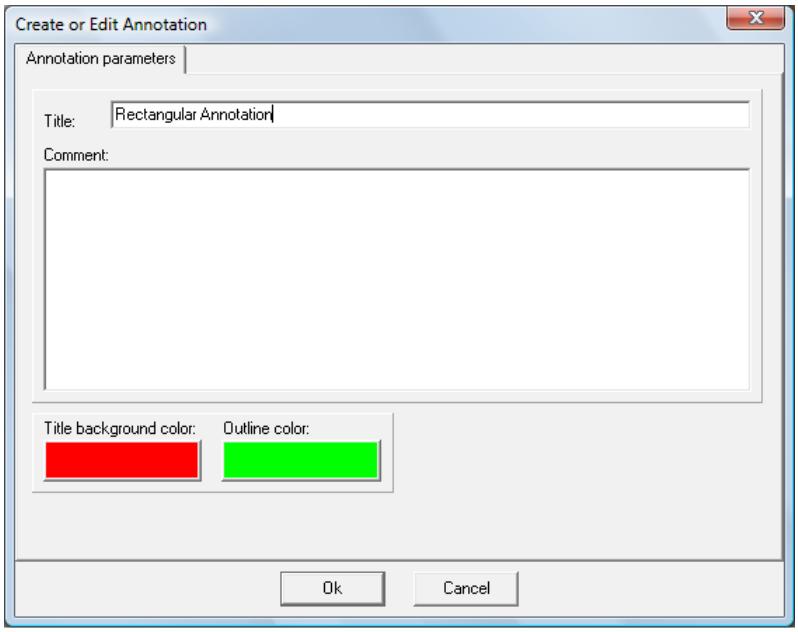
When a new annotation is created, Pannoramic Viewer automatically activates this feature.

3.7.1 Creating Annotations in Pannoramic Viewer



- **Rectangular annotation**

  If the button is on, a rectangle area can be marked by clicking into the digital slide with the left mouse button and keeping it depressed. As soon as the button is released, you are prompted to enter the name of the annotation (Title) and a comment in the **Create or Edit Annotation** window.



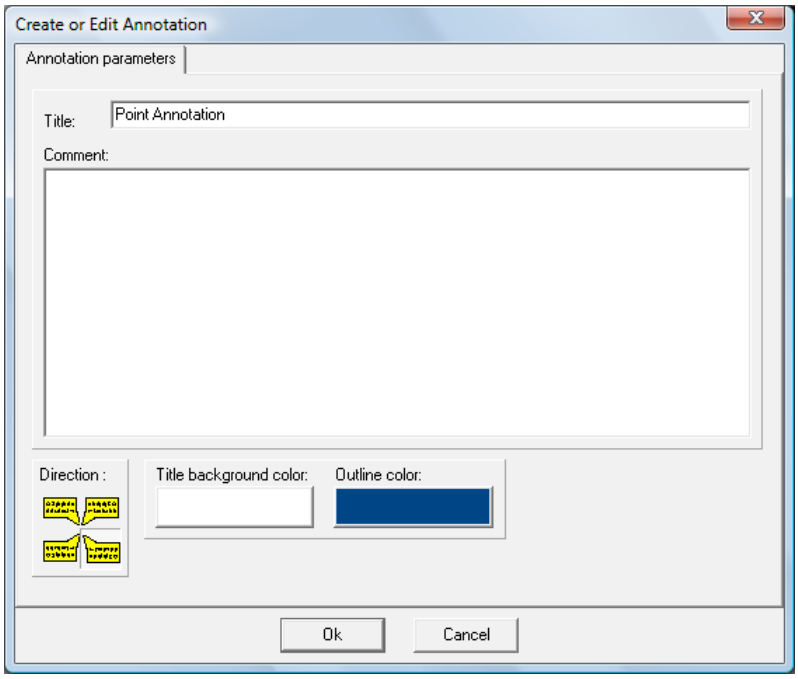
  While the title is a compulsory entry item which is indicated in that digital slide, the comment is an optional entry. In addition, a frame line color *(Outline color)* and a background color *(Title background color)* can be defined for the caption area.

- **Freehand annotation**

  If the button is on, a click into the digital slide with the left mouse button sets the starting point for freehand drawing. Further clicks with the left mouse button allow you to mark/outline any desired image area. For more accurate detection results, leave some gap between the outer cells of the area and the outline while creating an annotation. The end point of a given freehand drawing line must be located near the starting point for the marked area to be actually enclosed. To call the window for specifying *annotation* parameters, click the right mouse button. Parameters can be specified in much the same way as for rectangular-shaped *annotations*.

- **Point annotation**

  - To mark just a specific point rather than a whole area, the button must be turned on. To define an *annotation*, click a desired spot with the left mouse button. A special input window for definition of properties appears.



  An *annotation* name must be typed into the **Title** entry field. This name will also appear in the digital slide view. A **Comment** to this *annotation* is an optional entry item. A desired frame line color for that *annotation* can be selected in the **Outline color** input box. A background color for the *annotation* area can be defined via **Title background color**. **Direction** allows you to determine how the caption box is displayed to the given point.

- **Measurement annotations**

  A measurement annotation is provided for displaying a required distance or spacing.

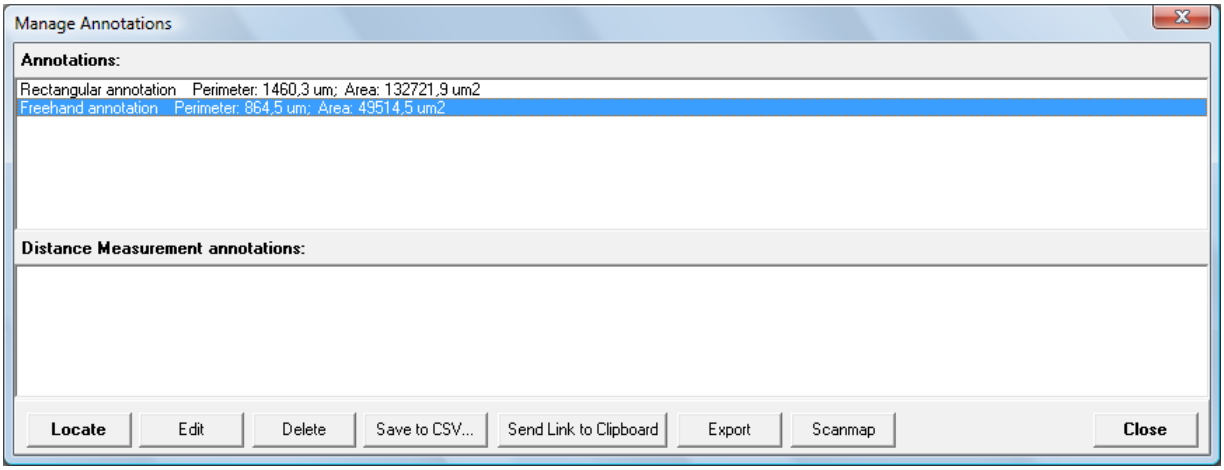
  Click the button, then select the **Create Distance Measurement Annotation** entry item. By clicking with the left mouse button the marked spot may be chosen as starting point now. By keeping that key depressed, dragging it accordingly and releasing it, the end point of measurement is defined.

> **Important!**
>
> When you save the slide, each *annotation* is saved as a separate layer: if several users mark up the slide with *annotations*, their *annotations* can be managed and eventually be deleted independently of each other.

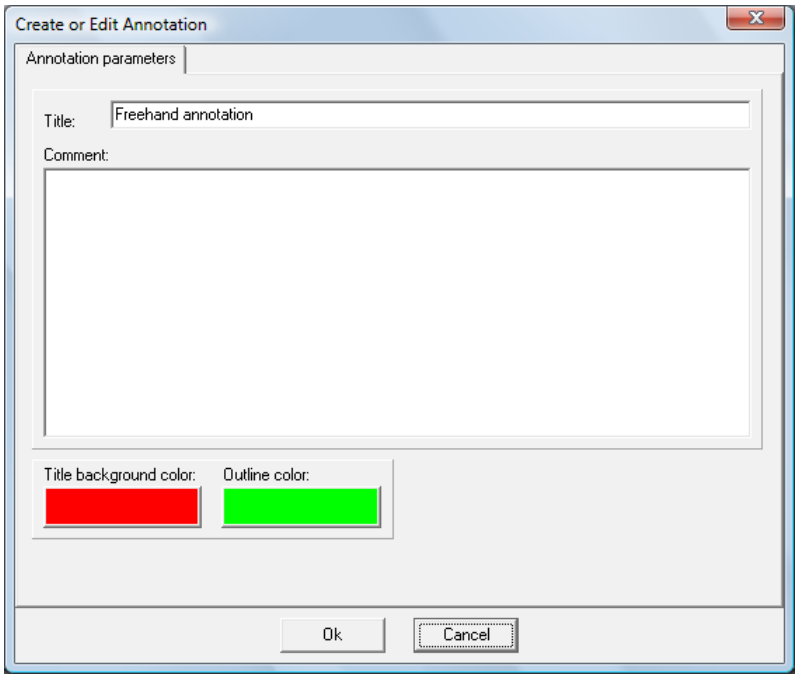
3.7.2 Managing Annotations

- Click the button on the slide toolbar.

A window appears showing all the *annotations* and measurement annotations on the slide.



- **Locate** – Changes the main screen view resulting in that the selected *annotation* is shown.
- **Edit** – Opens another window with options for editing the properties of a previously marked *annotation*.



- **Delete** – Deletes the selected annotation.
- **Save to CSV** – Saves the information contained in *annotations* and measurement annotations as a file. Values are separated by comma.
- **Send Link to Clipboard** – Copies a link to the selected *annotations* to the clipboard.
- **Export** – The currently displayed digital slide is opened in a predefined program and the marked *annotation* is transferred with its position data. For information on defining an application, see section 2.5.6.
- **Close** – Terminates this dialog.

Creating a link to an annotation

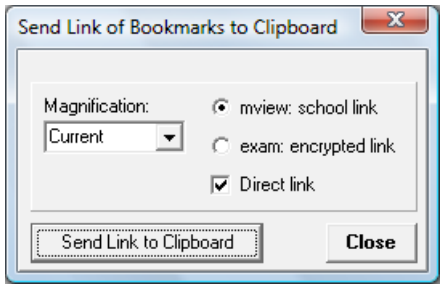
Tip!

You can use links to *annotations* (and therefore to slides) in E-School training or exam materials. When you copy the link in the address field of a web browser, Pannoramic Viewer opens and the slide to which the *annotation* belongs is opened, not the *annotation* directly.

1. Click the button on the slide toolbar.

2. Select the *annotation* that you want to save as a link.

3. Click **Send Link to Clipboard**.



- **Magnification** – select the desired magnification level
- **mview: school link** – choose this option to generate a normal link to *annotation*
- **exam: encrypted link** – generate link to *annotation*, but only with limited functionality (creating and editing are not possible)
- **direct link** – full path, or relative path is created to the slide

8. Open a text editor and copy the link into a text file.

Exporting annotations

1. Click the button on the slide toolbar.

2. Select the *annotation* or *annotations* you want to convert to another format.

3. Click **Export**:

- Measurement annotations can be exported to a CSV file.
- Non-measurement annotations can be exported to a HTML file, that includes a referenced JPG file for each *annotation*.

3.8 Measuring in a Digital Slide

3.8.1 Length measurement

You can perform length measurement jobs via related *annotations*. Although such *annotations* are saved and maintained as part of a digital slide, they can be deleted again. Refer to section 3.6 for a detailed description of the procedure to generate measurement annotations.

Apart from this working approach, it is also possible to perform temporary length measurements:

1. Press the button.
2. Select the **Measure Distance** entry item.
3. Define a starting point with the left mouse button, and move the mouse to the desired end point keeping it depressed.

   The distance reading from the starting point to the current position is indicated in µm. If the mouse button is released, a new starting point can be defined.

3.8.2 Determination of perimeter and surface area

Important!

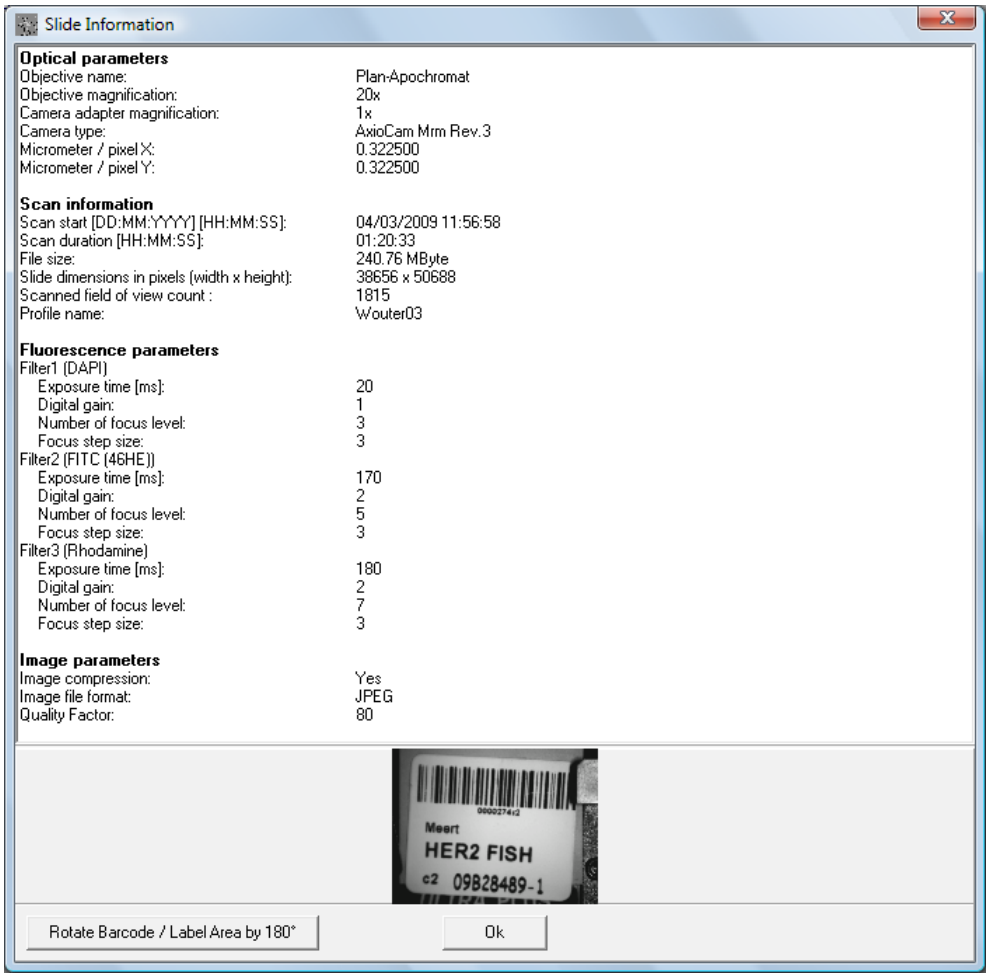
Neither a perimeter nor a surface area value can be determined directly.

To define any of these two parameters, an area must be defined at first, using rectangular or freehand *annotations* (refer to section 3.6).

Having completed this, click the button to turn the **Manage Annotations** window on. This window lists the perimeter and surface area values related to the given *annotation*. To save these data, click **Save to CSV...** (refer to section 3.6.2).

3.9 Displaying Information Relating to a Digital Slide

After clicking the button and selecting **Slide Information**, a window with information items relating to the digitized digital slide is displayed. These information items depend on the hardware used, the hardware control software version, and the mode of digitization.



3.9.1 Explanations to digital-slide-related information

Optical parameters

- **Objective name –** Shows the name of the objective used for imaging.
- **Objective magnification –** The given specimen was digitized with an objective with a physical magnification of 20x.

- **Camera adapter magnification –** Shows the magnification of the TV adapter (this information appears only if digitization was carried out with version 1.9 or higher).
- **Optovar magnification –** Shows the magnification of the Optovar used (this information appears only if digitization was carried out with version 1.9 or higher). This information is displayed only for digital slides digitized in the brightfield mode.
- **Camera type –** AxioCam Mm Rev.3 was used to digitize the digital slide.
- **Micrometer / pixel X –** Pixel resolution is 0,322500 µm in X direction for this digital slide. This value depends on Pannoramic Scanner control software settings and your hardware configuration.
- **Micrometer / pixel Y –** Pixel resolution is 0,322500 µm in Y direction for this digital slide. This value depends on Pannoramic Scanner control software settings and your hardware configuration.

Scan information

- **Scan start –** This digital slide was digitized on March 4, 2009 at 11:56:58.
- **Scanning duration –** Digitization time was 1 hour 20 minutes and 33 seconds.
- **File size –** This digital slide occupies about 240.76 MB of hard-drive space.

Important!

If a digital slide is opened via a teleconsultation server, no respective value is indicated.

- **Slide dimensions in pixels (width x height) –** The size of this slide is 38,656 x 50,688 pixels (each single image has a size of 1,400 x 1,000 pixels in standard configuration).

Important!

The slide size is referred to the total theoretically digitized area of a specimen, not to the actually digitized specimen.

- **Scanned field of view count –** To create the digital slide, a total of 1815 single images were taken.

- **Profile name –** The name of the profile under which the slide was digitized.

  If a slide was digitized in fluorescent mode, the individual channels are displayed with the respective parameters.

Fluorescence parameters (only for fluorescent slides)

- **Filter 1 (B) –** The name of the filter is indicated in brackets. It is indicated as defined by the user.
  - **Exposure time (ms)**

    This entry item informs on the exposure time for the individual image fields for this channel.

- **Filter <*n*> –** The name of the filter is indicated in brackets. It is indicated as defined by the user.
  - **Exposure time (ms)**

    This entry item informs on the exposure time for the individual image fields for this channel.

Image parameters

- **Image compression –** This entry item shows, whether a compression of the image data was carried out (Yes) or not (No).
- **Image file format –** This parameter indicates the image file format.
- **Quality factor –** In the case of a JPEG compression the quality factor is indicated here.

Preview image

Depending on the equipment of the digitizer, an additional image of the barcode area is displayed or not.

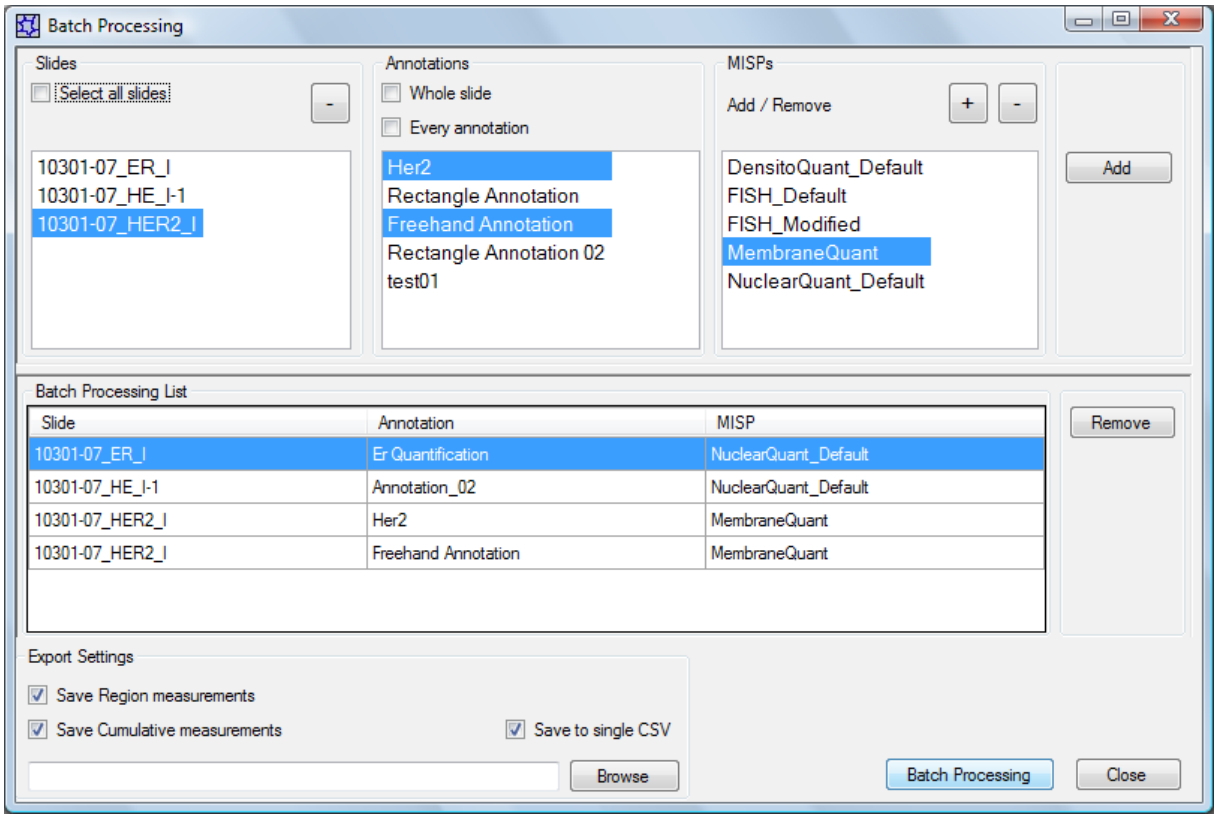
Rotate Barcode / Label Area by 180°

Press this button to rotate the barcode image by 180°.

3.10 Batch Processing

By clicking the icon on the bottom of the tree-view panel of the main window, the selected slides and their annotations will be listed in the Batch Processing window in which an specific Image Analysis application can be selected for each annotation.

1. Select the slide, then the annotation(s) from the list.
2. Choose the application or applications you want to run.
3. Click the **Add** button to move the process to the **Batch Processing List**.
4. Activate **Export Settings** options if necessary, either removal of a process is available by selecting it and clicking the **Remove** button.
5. Finally, click the **Batch Processing** button when finished.
6. After measurements are performed (and saved to a file), close the window.



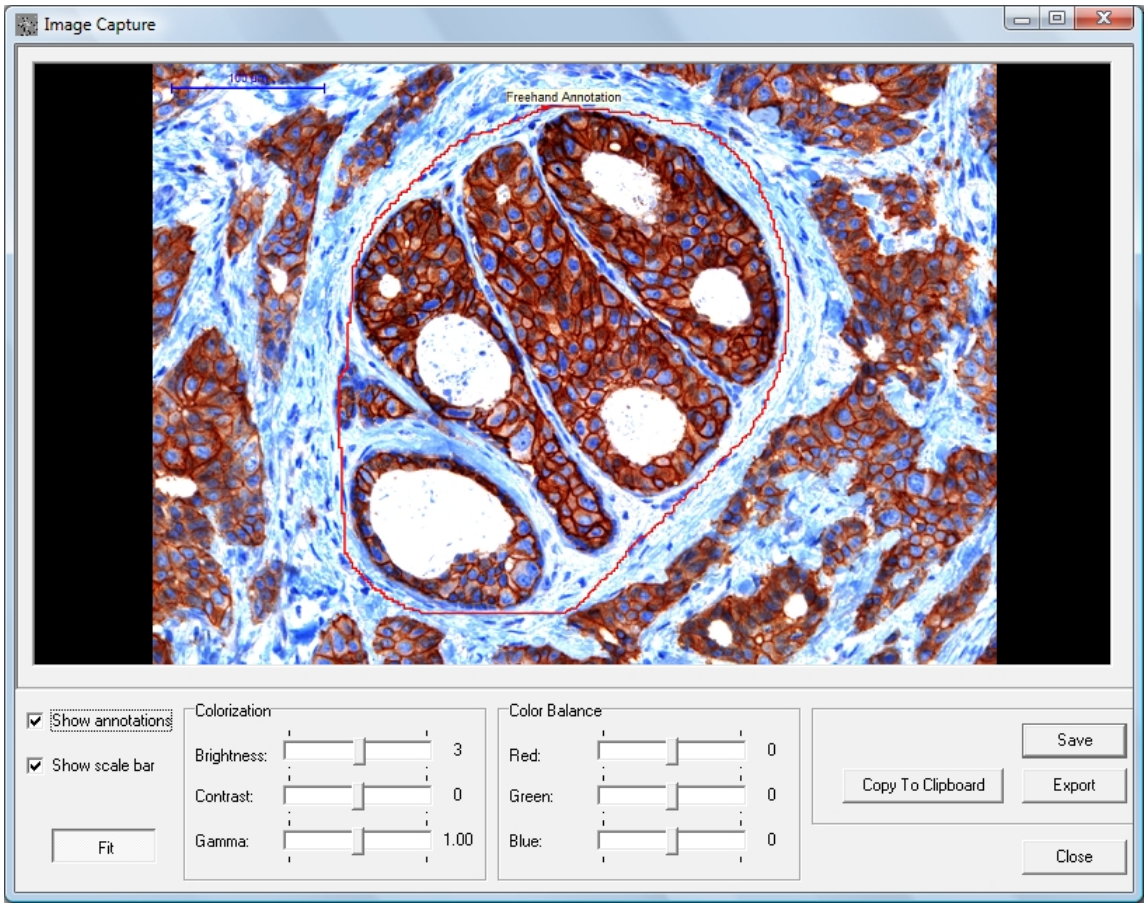
3.11 Exporting Slides from Pannoramic Viewer

Pannoramic Viewer allows you various possibilities to export slides or *annotations* to different file formats.

3.11.1 Image capture

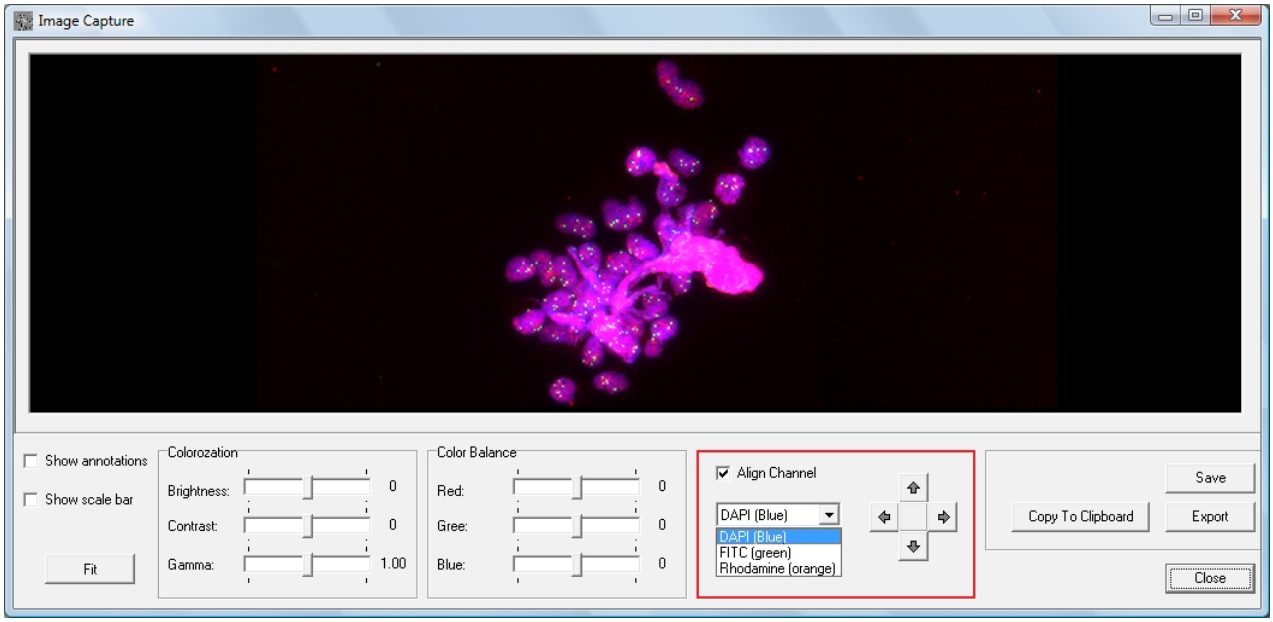
1. Set the magnification factor and shift the image in the slide window as needed.

2. Click the button in the slide toolbar.



3. Modify the image properties with the editing options, for example, change its brightness, contrast, and/or gamma correction values as needed.

   If a slide was digitized in fluorescence mode, by checking the **Align Channel** function, color channel layers can be individually moved to the desired position with the arrow buttons.



4. Export the image:

   - Click **Copy To Clipboard** to put the image to the Windows clipboard so that you can use it in another application.
   - By selecting **Export**, the displayed image will be opened with the raster image viewer application set previously in the Options window (section 2.5.5).
   - Click **Save** to save the image to file into a specific folder.

3.11.2 Saving a slide

a) Manually, outside of Pannoramic Viewer:

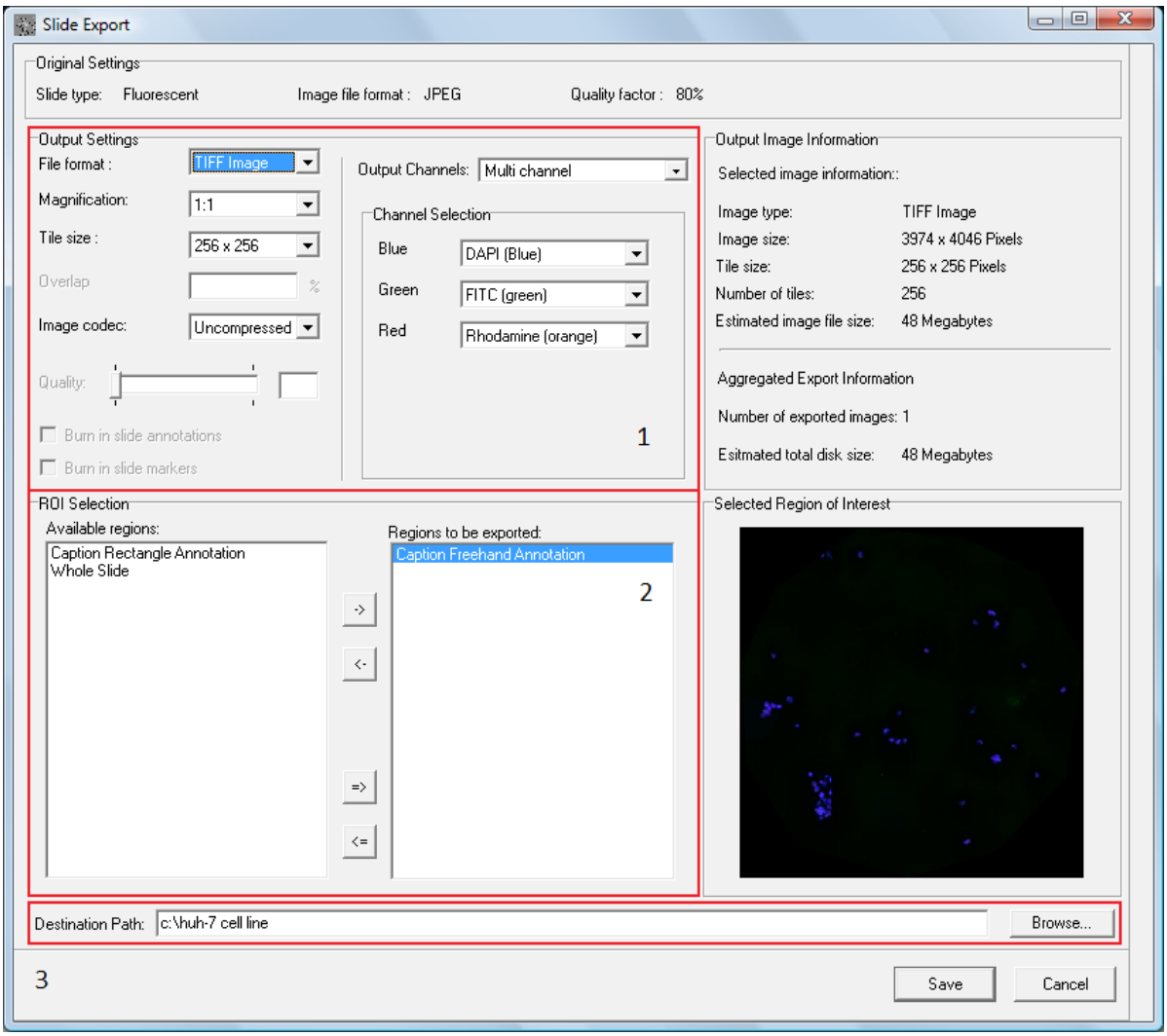
   - save the Pannoramic Slide and the folder with the same name as the MRXS file

b) From Pannoramic Viewer:

   - press **Ctrl+S** on the keyboard

3.11.3 Export to TIFF Image, Pannoramic Slide or to MetaXML

With the **Slide Export** function you can export a whole slide or just the annotated areas to TIFF Image, Pannoramic Slide or to MetaXML file format. Choose **Slide Export** from the **File** menu**.**



Important!

When you save the slide as a TIFF Image, the exporting result is a **tiled TIFF**. Therefore, applications such as *Windows Picture and Fax Viewer* **cannot** open this type of file. To save a standard TIFF file, use the image capture function (refer to section 3.9.1).

1. Output settings

You can set up the output file parameters in this window region.

a. Output file formats – TIFF Image, Pannoramic Slide, and MetaXML

b. Magnification – the level of magnification

c. Tile size – size of tiles from 256 x 256 up to 2048 x 2048

d. Overlap (only for Pannoramic Slides and MetaXML) – the percentage of overlap between two tiles

e. Image codec – for TIFF Image: **uncompressed** or **JPEG**

for Pannoramic Slide: **JPEG**, **PNG**, **BMP**

for MetaXML: **JPEG**, **PNG**, **BMP**, **TIFF**

f. Quality – JPEG compression level

g. Burn in slide *annotation* – if checked in, the *annotation* is burned in the slide as the part of the image

h. Burn in slide markers – can be checked only if you choose TIFF Image or MetaXML as an output format.

i. Output channels **–** modify settings mainly if a fluorescent slide is to be exported. It has three options:

I. Multi channel: a selected channel can be replaced by another one, written into the new slide (for example, you can set a GGR channel instead of BGR).

II. Single channel: one selected channel is written in the new slide.

III. Current View: the current color settings is written in the slide.

2. ROI (Region of Interest) Selection

You can select the whole slide, or just some annotated areas for export. You can select the annotated areas for export using the

button, or remove them from the selection using the

button. Also, you can select all the *annotations* with the

button or deselect them with the

button.

3. **Destination path**

The path where your slides will be stored. Slides are named after the *annotation* names (if any), otherwise you can give an alternative file name.

Warning!

Depending on your settings, the size of the exported area, and the number of exported areas, the size of the exported file can be quite large in some cases, and the process can take unexpectedly long time.

3.12 Synchronizing Slides in a Set

One of the advantages of virtual microscopy over the traditional microscopes is that once you digitized the slide, you can inspect a specimen with different stains. In Pannoramic Viewer, you can synchronize slides that belong together, so when you move one of the slide image(s) horizontally or vertically, Pannoramic Viewer shows the same area in the other(s) as well. Besides, magnification levels of the slides are synchronized, and when modifying zoom on one slide, the same step is applied on the other slide(s).

1. Open the slides that you want to synchronize. It does not matter whether you arrange them in cascading or in any other way.
2. Select the same magnification level for all slides.
3. Select an easy-to-distinguish detail that is visible on all slides and move it to the center of the window for each slide.
4. Click the button in the toolbar to synchronize the slides.

3.13 Recording Tracking History

Tip!

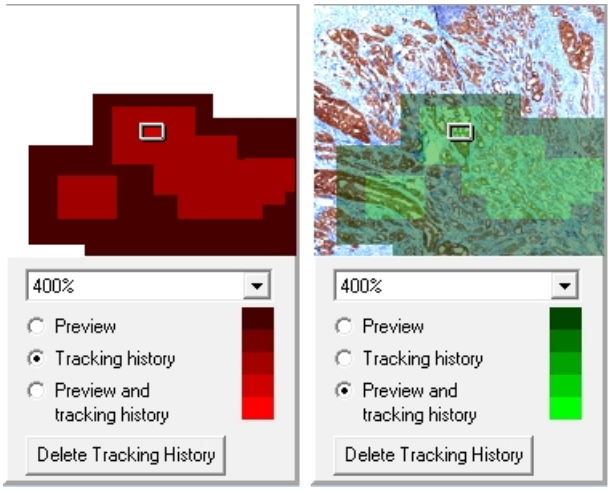
You can use the trace that you record as a proof of the inspection procedure.

Pannoramic Viewer can record how you move the mouse on the slide and what magnification levels you select at various spots. This tracing mask is saved as a superimposed layer rather than and integral part of the image. A position mask is even preserved on closing and reopening of the present digital slide.

> **Important!**
>
> You do not need to start or stop the recording process – Pannoramic Viewer automatically records whatever you do to the slide.

3.13.1 Retrieving the tracking history

If **Preview** is 'ON', only a preview of the digital slide is displayed without a position mask. If the **Tracking history** option is selected, only the position mask is displayed, while the variable preview screen is 'OFF'.



To display both the variable preview screen and the position mask, click the **Preview and tracking history** radio button in the panel or, to select it as default, choose the **Preview and Slide tracking history** option in the Options window (refer to section 2.5.2). The position mask appears as a color mask. Click the color bar to switch between the colors (red/green/blue) of the tracing mask. To remove the tracing mask, click the **Delete Tracking History** button.

The intensity of a color indicates the magnification at which a particular sub-area was examined. Brighter color shadings suggest greater magnification factors. A position is not saved, unless a certain magnification level was exceeded. Otherwise, no diagnosis is possible.

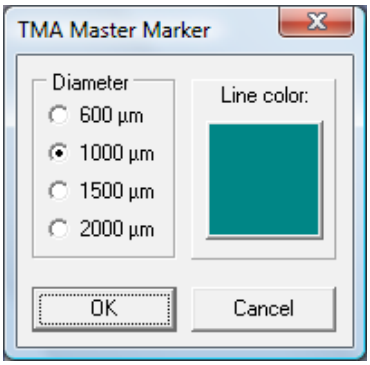
4 Working with TMA Master Marker

TMA Master Marker feature allows you to place markers on TMA Master slides, that the TMA Master control software analyzes and uses the markers as selected areas of the tissue to be removed from the donor block and transported to the recipient block.

4.1 Create TMA Master Marker

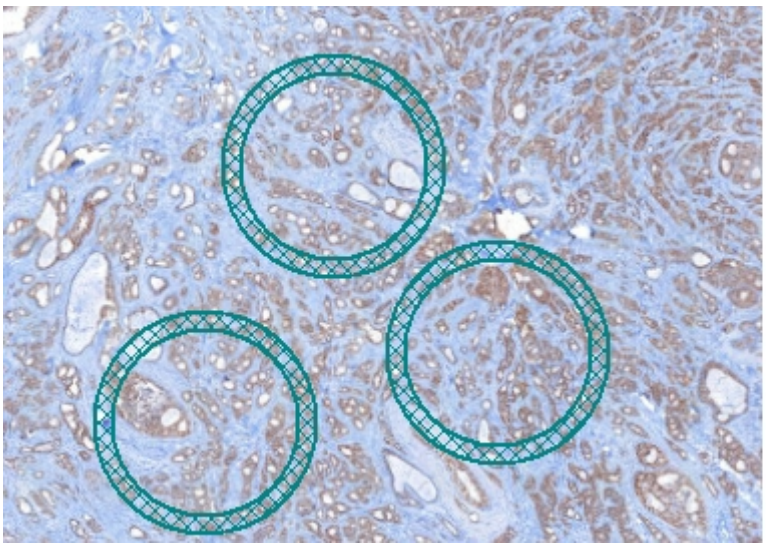
1. Click the button on the slide window toolbar, and select the **Create** menu.

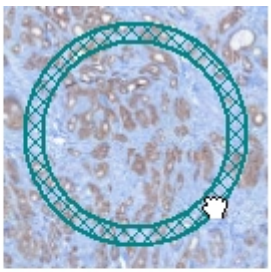
2. Set the diameter of the marker (that corresponds to the size of the puncher in the TMA Master unit). You can also choose a distinctive color for the marker(s) either of different or same sizes. Each time you want to change the marker diameter and/or color, click the button.



3. Click **OK** or **Cancel**.

4. When placing markers with the left mouse button, mind that the crosshair cursor in the slide window is presented as the center point of the marker.





5. You can drag a marker on the slide by the ring area of the marker (a hand cursor appears).

6. To remove a marker, right-click on the marker and select **Delete**.

If you press the button then select **Manage** option you will be available only to move and delete markers.

The slide containing TMA Master markers can be used later with the TMA Master software application to determine which areas of the donor block should be transferred to the recipient block. For more information, see ***TMA Grand Master 1.0 User's Guide*** or ***TMA Master 1.14 SP1 User's Guide***.

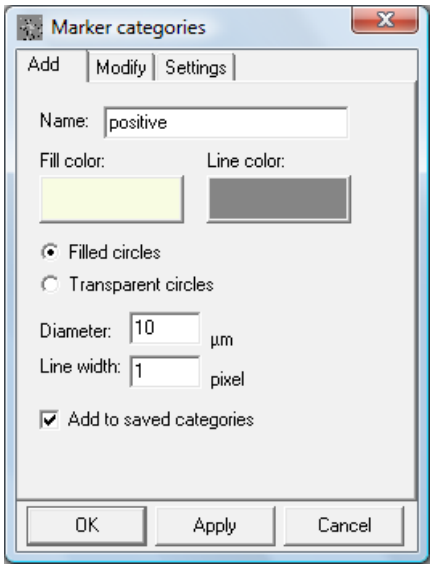
5 Working with Marker Counter (licensed feature)

With **Marker Counter** you can create marker categories, and place markers to point to specific areas of an *annotation*.

5.1 Managing Marker Categories

> **Important!**
>
> The size of the markers is magnification dependent (it is proportional to the magnification used) as they are defined in **Marker Manager**. If the magnification is lower, the size of the markers is smaller.

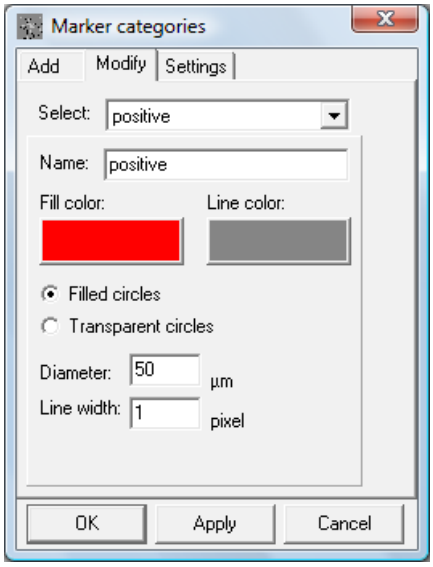
1. To set up a Marker Annotation, press the button on the slide window toolbar.
2. Select the **Manage Marker Category** menu item.



3. On the Add tab in the **Marker categories** window, give the name of the marker category, select unique Fill and Line colors if necessary.
4. Choose **Filled circles** or **Transparent circles** to determine the visualization type of markers.
5. Type in the **Diameter** and **Line width** values of markers.
6. Check **Add to saved categories** to add the marker category to Saved categories.

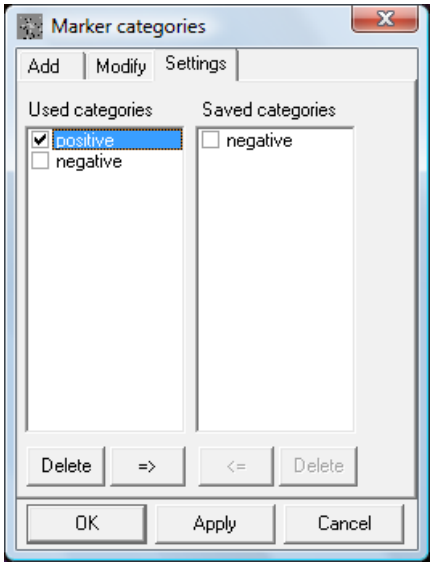
Modify Marker categories

On the Modify tab of the Marker categories window, select a category and modify its attributes if necessary.



Marker category settings

You can manage marker categories on the Settings tab. There is a possibility of deleting, and also adding them from the Used categories to the Saved categories column, and vice versa.

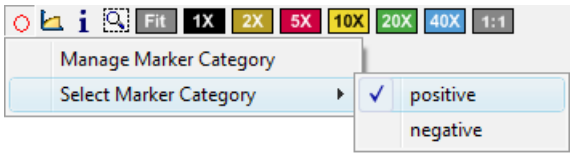


7. Click **Apply** to save changes and leave the window open, or **OK** to save and close the window.

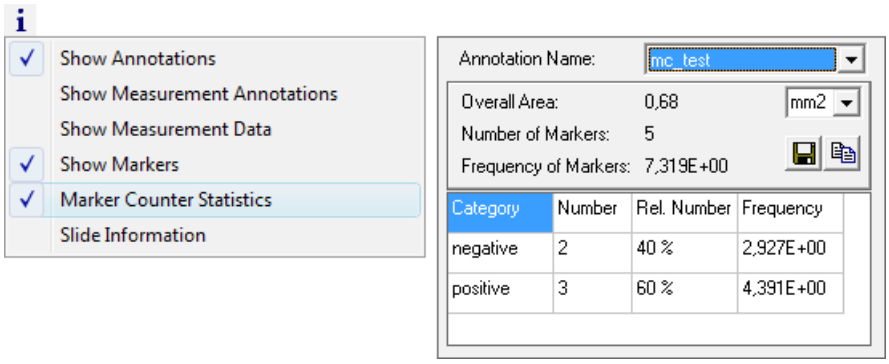
8. Click **Cancel** to abandon changes and exit window.

5.1.1 Using existing marker categories

1. Create an annotation on the target area.
2. Select the marker category and place markers on the objects to be measured in the target area.



3. If you want to delete markers, right-click on them, and select **Delete**.
4. Click the button, and select the **Marker Counter Statistics** menu item.
5. The Marker Counter Statistics window appears on the screen showing values for each category regarding the overall area, number, relative number, and frequency of markers within the given annotation.



6. If you need an additional marker category which does not exist yet, create it.
7. Save or export (Copy to clipboard) the measured parameters and images by clicking the or the button.

If the markers are inside of an annotation (also free-hand annotation), they are summed for that region. In this way it is very easy to produce cell number/area ratios for an actual studying.

5.1.2 Exporting Marker Counter results

You can display the most important values for each marker category in the Marker Counter window and you can export them as a CSV file:

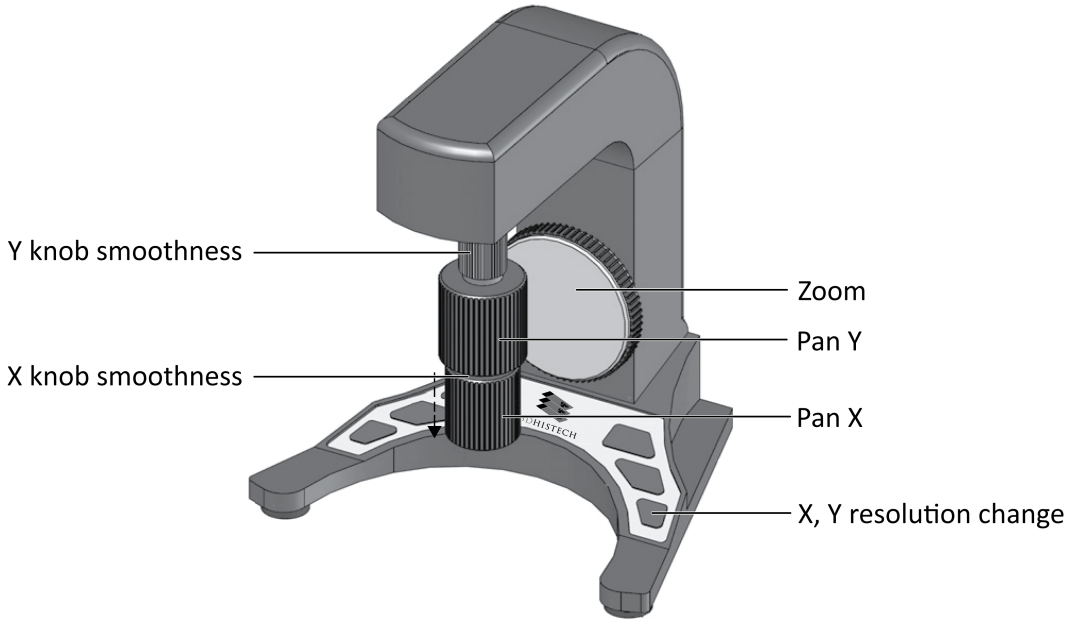
- Number of marked objects / labeled area (or objects / standard area).
- Percentage of positive cells in the cell population, for example, in a tumor.

In representative areas the number of positive cells must be divided by the sum of positive and negative cells and multiplied by 100.

6 Ergodrive

Ergodrive is a 3-axes operating device, that is able to carry out rapid and accurate slide positioning across the complete travel range within microns.

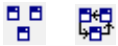
The adjustable drive knobs enable an ergonomic adaptation to friction and height. The friction knob with which you can set the resisting force of the X knob can be accessed when the X knob is pulled down.

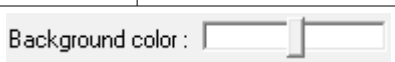


Main features of the device:

- alternative velocities for XYZ
- high-resolution, proportional positioning
- fast and sensitive slide positioning across the entire travel range (in sub-µ area at the same time)
- ergonomic adjustment for friction and height (telescopable mechanism)

Appendix – Toolbar Buttons

Main window toolbar buttons		
	Show slide tree	Turns slide tree for digital slides on or off
	Show thumbnails	Turns thumbnail view screen (gallery) on or off
	Open slide	Opens a dialog window for adding a folder or opening a single digital slide
	New 3D project	Launches a 3D project under the 3D Reconstruction Module
	Connect to teleconsultation server	Logging in to a teleconsultation server to view digital slides
	Host teleconsultation	If this icon is selected, the host will create a group (online teleconsultation)
	Join teleconsultation	If this icon is selected, a client may join a group (online teleconsultation)
	Disconnect from teleconsultation server	Separates the user from teleconsultation server
	Tile vertically	Arranges several windows currently open horizontally one beside the other
	Tile horizontally	Arranges several windows currently open one below the other
	Cascade	Arranges several windows currently open in a cascade
	Synchronize all slide windows / Slide windows synchronized	Links open windows for simultaneous navigation
	Full screen	Maximizes currently selected window to cover the entire screen area
	Rotate 90° left	Rotates Slide by 90 degrees left
	Rotate 90° right	Rotates Slide by 90 degrees right
	Rotate 180°	Rotates Slide by 180 degrees
	Flip horizontal	Flips Slide horizontally
	Flip vertical	Flips Slide vertically
	Rotate slider	Rotates Slide by dragging the slider
	Measurement Visualization	Launches a window for the Measurement Visualization Modules (HistoQuant, MembraneQuant, NuclearQuant, FISHQuant)
Digital Slide window toolbar buttons		
	Show / hide preview panel	Turns preview image on or off
	Show / hide magnifier	Turns magnifier on or off

	Properties window	Shows or hides an operator panel for color matching
	Pan mode	Allows you to shift the window contents using the mouse or keyboard commands if active
	Create rectangular annotation	This function is used to create a rectangular-shaped annotation
	Create polygonal or freehand annotation	This function is used to create a freehand-drawn annotation
	Create point annotation	This function creates an annotation that points to a specific spot
	Create TMA Master Marker	By clicking this button you can place markers on TMA Master slides
	Measurement options	Allows you to measure a distance in a virtual slide and/or create a measurement annotation
	Manage / locate annotations	Opens a window for organizing of the various annotations
	Create slide report	Selects annotations for consolidation in a report
	Capture image	Creates a bitmap snapshot of the virtual slide
	Show slide on tree	By clicking onto this button, you can mark the entry that relates to a currently opened virtual slide, if the slide tree is shown
	Information options	Displays a menu for turning view screen for annotations / measurement annotations / measurement data / markers on and off, and opening virtual slide information window
	Zoom to selected area mode	You can select sample areas to be enlarged via mouse selection
		You can select from predefined magnification levels
	Visualization Data	Visualization data can be displayed as histogram, scatter plot, or an image gallery (available only for Measurement Visualization Modules)
	Marker Counter	Activates Marker Counter feature (licensed – optional)
Digital Slide window toolbar buttons for fluorescence slides only		
	Turn color channels on/off	Changes between gray-level and color view
		Shows all available channels; they can be turned on or off
	Optimum displaying	Optimizes the view according to the Best Fit method for all channels
	Optimum channels	Optimizes the view according to the Min/Max method for all channels
	Default colors	Resets the settings to the default values
		This slider is used for setting background color of the slide window

References

Pannoramic SCAN 150 1.15 User's Guide

TMA Grand Master 1.0 User's Guide

TMA Master 1.14 SP1 User's Guide

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